The Oil and Gas Journal

PRODUCING REFINING MARKETING

VOL. 24. NO. 40. TULSA, OKLAHOMA, FEBRUARY 25, 1926

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Field Operations Continue To Increase

Highest daily average estimated production week ended May 30, 1925, 2,347,984 bbls. Lowest in 1925, January 3, 1,911,730 bbls.

Promising Showings in Number of Tests Indicate Possibilities of Much New Production

By Andrew M. Rowley

Highest daily average estimated light oil production in 1925, week ended January 17, 1,525,220 bbls. Lowest in 1925, July 18, 1,374,173 bbls.

Continued activity in starting drilling operations in numerous promising areas of the United States may still be considered the outstanding feature of the crude petroleum situation. It is of great importance because of the good showings obtained in many of the tests and in view of the possibility some of these tests may open a new producing area. As a general average, three-fourths of all wells completed are productive of oil or gas in commercial quantities and with the large number of new operations being carried on now, there should be a considerable amount of oil produced from these new tests.

The larger companies are maintaining a most commendable and conservative attitude in their operations at present, a most favorable indication from the standpoint of operators who feel that all the crude needed is being produced and that greater prosperity would ensue were the output of crude curtailed greatly for some time to come. The Midwest Refining Co. completed a 6,000-barrel well from the Lakota sand in Salt Creek, one of the largest producers in that area in several months. The company will shut in the well as it is maintaining a policy of conserving production of the Lakota sand in the sand and not bringing oil from that horizon to the surface until there is an actual need for more production. Such a need does not exist at this time.

The Panhandle section of Texas continues to attract oil men from all over the country, recent completions of good producing wells stimulating activity. Pipe lines in that territory are needed, however, before any really active development ensues and until these transportation facilities are provided, the Panhandle will not wield great influence on the general situation except as a potential field.

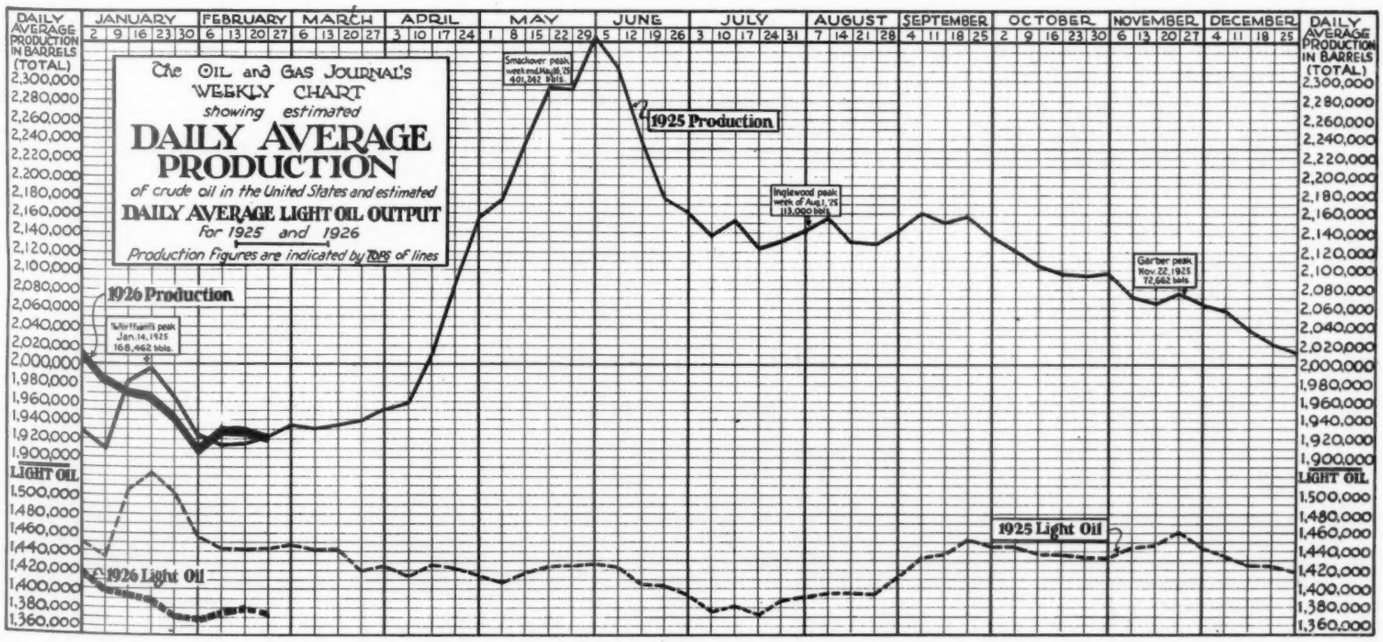
While production in California continues a slow decline, it must be remembered the output of that state can be increased about 65,000 barrels almost overnight by opening wells now shut in and that a further increase in production of from 75,000 to 100,000 barrels daily could be procured by drilling in proven areas. This proven acreage is held by the larger companies who realize there is plenty of time to drill and that there is plenty of crude available now for all requirements.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity crude oil in the United States for week ended February 20, and a comparison with the previous week follows:

	Feb. 20		Feb. 13	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	41,945		42,345	
Burbank	44,715		44,840	
Other Osage Fields	33,010		33,110	
Cushing and Shamrock	22,460		22,540	
Bristow and Eastern Bristow	31,920		32,090	
Cromwell	19,580		20,010	
Papoose	15,090		15,315	
Garber	27,920		27,145	
Blackwell-Braman	13,785		13,955	
Davenport	21,770		19,830	
Thomas	9,315		10,160	
Northern Miscellaneous	104,150		102,915	
Southern Fields	64,905		64,610	
Total Oklahoma	450,565		448,865	
North Louisiana	44,620		43,410	
Arkansas—				
Eldorado and Calion	7,560		7,575	
Smackover Light	18,850		19,180	
Smackover Heavy		140,415	.....	140,175
Stephens and Nevada	3,135		3,205	
Total Arkansas	29,545	140,415	29,960	140,175
North Central Texas	159,625		160,875	
Powell	32,500		32,996	
Mexia, Currie, Richland, etc.	16,950		19,158	
Wortham	11,750		12,320	
Kansas	102,470		101,420	
Total Mid-Continent Area	848,025	140,415	849,004	140,175
Gulf Coast		99,390	.....	101,766
Southwest Texas		37,705	.....	37,905
Eastern	98,250		98,475	
Rock Mountain Area	98,295		98,150	
California—				
Santa Fe Springs	49,000		49,000	
Long Beach	113,500		114,000	
Huntington Beach	44,500		45,000	
Torrance	5,000	24,500	5,000	25,000
Dominguez	21,000		22,000	
Rosecrans	21,000		22,000	
Inglewood	27,000	23,000	27,000	24,000
Remainder of State	53,000	221,000	52,000	221,000
Total California	334,000	268,500	336,000	270,000
Total United States	1,378,570	546,010	1,381,629	549,846
Grand Total	1,924,580		1,931,475	

→ **Total Decrease, 6,895 Bbls.; Light Oil Decrease, 3,059 Bbls.** ←



WHAT AND WHERE TO BUY—PAGES 149-150-151

Oklahoma Refined Market Unchanged

Purchases of Higher Gravity Gasolines for Export Cause Better Feeling but the Lack of Domestic Demand Is Dominating Factor

By Neil Williams

Except for the purchase of approximately 4,000,000 gallons of higher gravity gasolines, there were no developments the past week to alter materially the Oklahoma (Group 3) refined market. The weakness, wich has been felt in nearly all products continued, and on the whole actual prices were nuchanged.

The only noticeable change was in gas oil, which apparently was firm with little of the product available since several buyers entered the market a week ago. However, this firmness in gas oil was in contrast to the fuel oil situation which was described as stationary. Kerosene continued strong.

Although the general situation continued soft, a better feeling was noticeable among some sellers. Part of this feeling was traceable to the purchases of higher gravity gasolines, although these did little more than prevent a greater softening of these products. These purchases, which were completed the middle of the past week included 3,500,000 gallons of 60-62 400 gasoline and about 300,000 gallons of 64-66,375 gasoline.

The former purchase was made by the Imperial Oil Marketing Co. for the New Orleans Refining Co. with prices ranging from 11¾ to 11⅞ cents. The 64-66 375 gasoline was brought by the Carson Petroleum Co. The bulk of the 60 gasoline was taken from Oklahoma refiners although a few orders were placed with Kansas sellers, and thus were of more benefit to Group 3 than many of the export orders of higher gravity gasoline, which usually are placed in North Texas as far as possible.

In this connection, the Atlantic Refining Co. also purchased around 3,000,000 gallons of higher gravity gasolines the last of the previous week and the first of the past week but the bulk of these orders were placed with North Texas refiners.

The purchase for export the past week merely bore out the general trend of exporters this year of buying steadily. Orders for similar amounts have been placed nearly every week for several months, and exporters still are reported to be in the market for these grades of gasoline. However, one Mid-Continent buyer for a large exporting firm emphatically announced that he was out of the market for some time and other exporters declared they had plenty of gasoline for the remainder of the month.

The continued inactive domestic demand still was the dominating factor in the market situation and offset whatever strengthening effect export buying might have had on the situation. There were very few inquiries for U. S. Motor gasoline and lower gravity gasolines.

The orders for higher gravity gasolines the past week did not have the marked effect on the market situation some observers expected because on the whole they were placed with the larger refiners and not with the smaller operators who were reported to have been in need of moving their products. This largely was due to the fact that some of the smaller refiners held out for a higher price than that offered by the buyers. As a result some of the refiners who did not share in the orders still have quantities of distress gasoline to sell.

However, as previously mentioned, a better feeling seemed to appear, whether warranted or not. This was evident in the belief of some that gasoline prices would not go much lower at this time and that the first of March would see developments which would change the entire situation.

This opinion was strengthened by the announcement of several large refiners that they would buy gasoline which appeared under present market prices rather than make the products themselves. This appeared logical as prices already are admitted to be less than the cost of manufacturing, based on present crude prices.

Refiners, however, are of the opinion that most of the real "bargain priced" gasoline has been disposed of. Marketers, who are credited for the underselling made possible by long February purchases before the crude advances and subsequent refinery increases, have been pushed for instructions before the close of the month and now are thought to have been nearly eliminated as a competition factor.

A few purchases have been made on the strength of possible further crude advances, and if the crude advances materialize, these may offer some check in refineries getting higher prices which should follow a crude raise.

On the other hand, if crude is not

(Continued on Page 136)

REFINED MARKET BAROMETER

Except for a few products, refined markets of the country were unchanged the past week. Gasoline on the whole was inactive, although a better tone now is developing in some areas with possibilities of increased demand. Kerosene continued in its general strong position with prices higher in some districts. Fuel oil was unchanged, the weakness in the Mid-Continent and Middle West still not being reflected in eastern markets where fuel is firm. Gas oil increased in demand and was followed with higher prices, especially in the Mid-Continent. Natural gasolines were not in demand except on the west coast and prices generally were weak. Lubricants were less active except a few grades of neutrals in Pennsylvania and on the Gulf Coast.

Mid-Continent—Gasoline developed a slightly tighter tone in some parts of the Mid-Continent although the general situation continued weak because of the slow domestic demand. Kerosene remained strong and in demand. Natural gasolines showed no improvement. Fuel oil still sluggish but new buying aids gas oil. Other products unchanged.

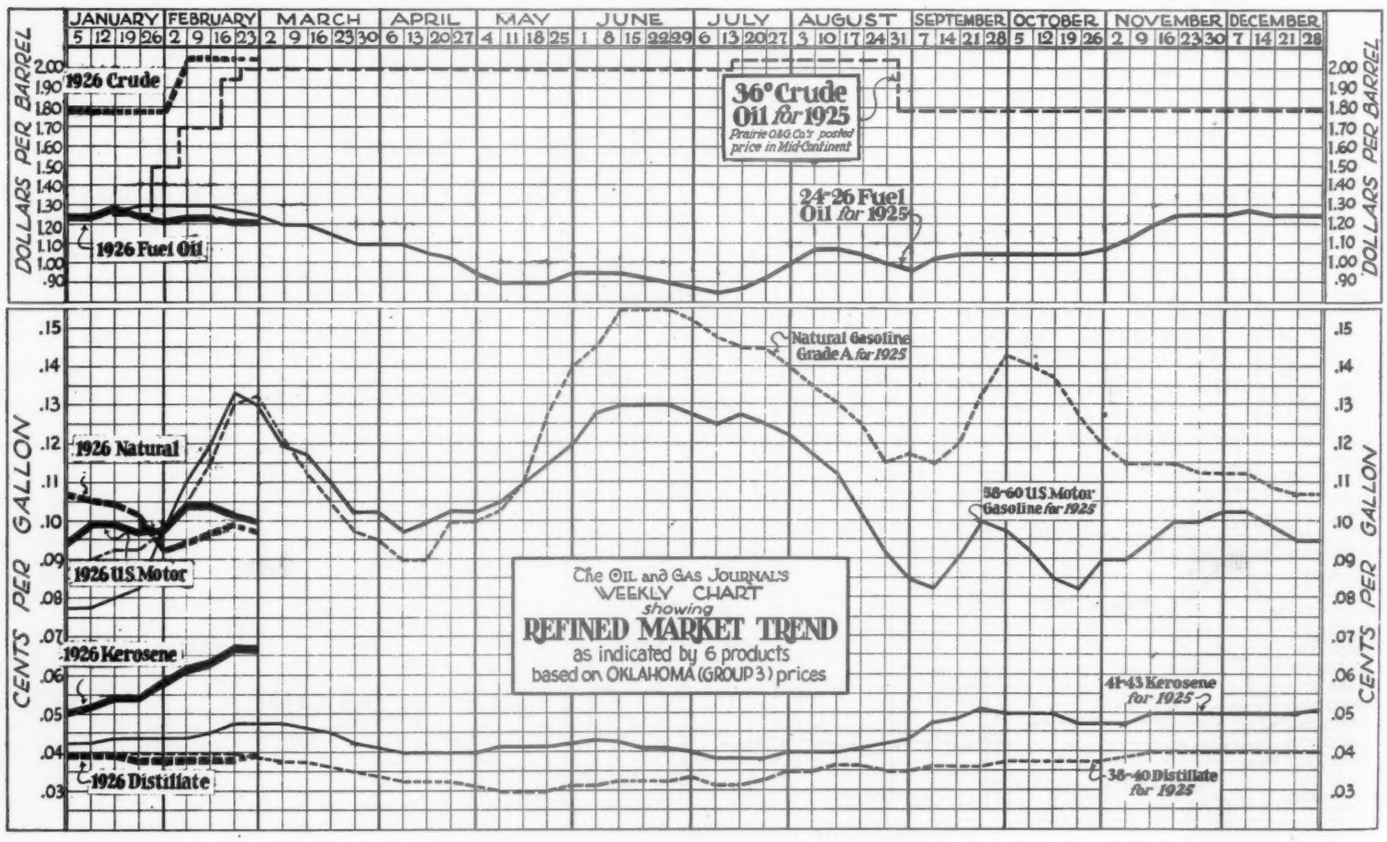
Atlantic Seaboard—Gasoline quiet but better demand expected with abatement of bad weather. Kerosene continues upward. Furnace and Diesel oil demand greater. Gas oil strong and fuel oil firm. Lubricants slow. Petrolatum dull.

Pennsylvania—Gasoline and naphtha slow. Kerosene strong. Neutrals scarce but cylinder stocks off. Fuel oil unchanged. Wax demand good.

Chicago.—Refined market dull except kerosene and gas oil. Fuel oil unchanged. Lubricants slow. Prices on all products fairly steady.

California—Refined prices unchanged. Gasoline demand steady. Natural gasolines strong. Lubricants show little improvement after price reductions.

Gulf Coast.—Unchanged.


JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER
DOLLARS PER BARREL
1926 Crude
1926 Fuel Oil
36° Crude Oil for 1925
Prairie O&G Co's posted price in Mid-Continent
24-26 Fuel Oil for 1925
CENTS PER GALLON
1926 Natural
1926 U.S Motor
1926 Kerosene
1926 Distillate
Natural Gasoline Grade A for 1925
58-60 U.S Motor Gasoline for 1925
41-43 Kerosene for 1925
38-40 Distillate for 1925
The Oil and Gas Journal's WEEKLY CHART showing REFINED MARKET TREND as indicated by 6 products based on OKLAHOMA (GROUP 3) prices

Western Refiners Meet Next Week

Varied Program With Group Sessions for the Department Heads for Fort Worth Convention. Ends Exceptional Year

Next week the Mid-Continent refining industry as represented by the membership of the Western Petroleum Refiners Association will meet in Fort Worth, Tex., for its sixth annual convention. Advance reservations indicate that it will be the most largely attended in the history of the Mid-Continent area.

Group sessions inaugurated at last year's convention will feature the 3-day meeting which will serve not only as a clearing house for developments of interest to the Mid-Continent refiner during the past year but will also give those in attendance a clearer insight into the problems with which they are confronted during the coming year.

F. A. PIELSTICKER

Vice president of the Skelly Oil Co. and president of the Western Petroleum Refiners Association

The operators of the refineries, the traffic men and the sales and credit managers will all have their group meetings. As scheduled in the accompanying program several prepared papers will be presented at these meetings. Of equal value to those in attendance will be the opportunity for general discussion of all matters of interest to the department heads.

PROGRAM ANNUAL CONVENTION WESTERN PETROLEUM REFINERS' ASSOCIATION, FT. WORTH, TEX., MARCH 2, 3, 4.

First Day, Tuesday, March 2

9:30 a. m. sharp—Registration, lobby and fourteenth floor the Texas Hotel, Fort Worth.

10:00 o'clock a. m. sharp—Traffic managers meeting, cactus room, fourteenth floor, R. R. Irwin, vice president White Eagle Oil & Refining Co., presiding.

Docket 17000 and the Rate and Transportation Situation, Fayette B. Dow, Washington Counsel.

Traffic and Its Place in the Industry, H. C. Mulroy, vice president, Marland Refining Co.

1:30 o'clock p. m. sharp—General meeting, Crystal Ballroom, fourteenth floor, president F. A. Pielsticker, presiding; president's annual address, Washington Counsel's address.

Credit and Sales Managers Meeting, Crystal Ballroom, fourteenth floor, George D. Locke, vice president, Barnsdall Refining Co., presiding.

"Wholesale Selling of Oils," R. R. Irwin, vice president, White Eagle Oil and Refining Co.

"Credits," A. B. Eisenhower, vice president, Commerce Trust Co., Kansas City, Mo.

Barbecue and entertainment for the men.

Second Day, Wednesday, March 3

9:30 o'clock a. m. sharp—Technical Meeting, Crystal Ballroom, fourteenth floor, C. L. Henderson, vice president, Vickers Petroleum Co., presiding.

"Decreasing Refinery Evaporation Losses of Gasoline," Ludwig Schmidt, associate petroleum engineer, Bureau of Mines.

"The Mind as a Factor in Industrial Accidents," Isaiah Hale, safety supervisor, Atchison, Topeka & Santa Fe Railway Co.

"Specifications of Petroleum Products," Dr. A. P. Bjerregaard, petroleum technologist, Empire Refineries, Inc.

Buffet luncheon, fourteenth floor.

"Contributing Factors to Corrosion With Special Reference to Sulphur," Dr. C. K. Francis, petroleum technologist.

"What Domestic and Industrial Oil Burning Mean to the Refiner," Edward P. Bailey, treasurer, National Airoil Burner Co., formerly president of American Oil Burner Assocaition.

"What Does Insulation Mean to the Refiner?" L. E. Cover, engineer with Armstrong Cork & Insulation Co.

Evening, 7:00 o'clock p. m. sharp—Annual banquet, main dining room, lobby floor.

Toastmaster—R. L. Welch, secretary and counsel, American Petroleum Institute.

"The Price We pay"—Sidney Samuels, attorney at law.

"Past and Present"—D. W. Moffitt, vice president, Mid-Continent Petroleum Corp.

Third Day, Thursday, March 4

9:00 o'clock a. m. sharp—Breakfast, main dining room, lobby floor, president, F. A. Pielsticker, presiding.

"Taxes As a Cost of Doing Business," Harry H. Smith, secretary Mid-Continent Oil and Gas Association.

Executive Session, members only; election of officers and directors; new business.

At the general sessions including the annual banquet on Wednesday night messages of general interest to the refining industry will be discussed by widely known speakers. Fort Worth business interests cooperating with the program committee of the association have provided several entertainment features. The feature stag affair of the convention will be on Tuesday night when a barbecue will be held.

The ladies attending the convention will be entertained on Tuesday night at a theater party. Wednesday afternoon a luncheon and bridge party will be held at the New Fort Worth Club.

Pielsticker to Retire

The convention will mark the retirement of F. A. Pielsticker, vice president of the Skelly Oil Co., as president of the association. Mr. Pielsticker was first elected president of the association two years ago at a meeting held in Dallas. He desired to retire last year but at the unanimous solicitation of the membership he consented to serve one more year. His incumbency has covered a period of unusual development for the western refiner despite the fact that it was also a period of many difficult problems.

Mr. Pielsticker's successor will be chosen on the final day of the meeting. Some other changes will probably be made in the officers and also the board of directors and executive committee. The past year has witnessed several changes in refinery ownership and this will be reflected in the association's officers for the coming year.

A Year of Progress

The convention closes what in several respects was the most important year in the history of the Mid-Continent refiner. That area, which includes Oklahoma, Kansas, North Central Texas, Arkansas and North Louisiana, had an exceptionally large increase in its gasoline output and this fact gave it a dominant position in the industry's crude and refined markets.

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SOME OF SPEAKERS AT THE ANNUAL CONVENTION OF THE WESTERN PETROLUM REFINERS ASSOCIATION

H. C. MULROY
Vice President, Marland Refining Co.

LUDWIG SCHMIDT
Associate petroleum engineer, Bureau of Mines.

ISAIAH HALE
Safety supervisor, Atchison, Topeka and Santa Fe Railway Co.

DR. A. P. BJERREGAARD
Petroleum technologist, Empire Refineries, Inc.

Some Factors Affecting Well Spacing

Structural Position, Gas and Hydrostatic Pressures, Viscosity, Capillarity, Adhesion and Surface Tension and Gas Oil Ratio

By F. M. Brewster*

Gas is the most active agent in the expulsion of oil, while capillarity and adhesion are probably the most active agents in the retention of oil in the sand. Gas pressure has to be excessive to overcome this capillary force. The radius of influence of wells in oil drainage is an important consideration in planning and development. This undrained volume of sand increases with the distance between wells. Due to friction a greater force is necessary to cause movement of the oil 100 feet from a well than is necessary to move oil one foot from the well. With a uniform pressure throughout the sand it follows that the areas near the well are more completely drained than those at a distance. But uniform pressures do not prevail throughout the life of a well. Hence the oil in the sand immediately surrounding the well will get the benefit of maximum pressure and needs it least while oil located at some distance from the well will have to move under a much reduced pressure prevailing during the latter part of the period of extraction. Furthermore there is the probability of gas associated with the distant oil escaping through the unsaturated sands in the vicinity of the well, without doing useful work.

Pumping Air or Gas

This substantiates the practice of pumping air or gas into a sand and holding a pressure on the sand, not as a high differential in pressure between inlet and outlet wells but a nearly uniform pressure over the entire field.

Under this pressure part of the gas will dissolve in the oil and will decrease the viscosity of the oil.

Movement of the thinner oil can be effected with less energy and greater quantities of oil can be recovered but the dissolved gas is no longer capable of exerting any propulsive force and must be replaced with other gas to propel the oil to the hole.

The presence of gas in or occluded with the oil is an important factor in causing natural flow. Oil tends to form a film around a gas bubble and to be carried along with the gas. If gas is present in sufficient quantity and has enough pressure to overcome the column of fluid in the hole the well will flow. But eventually in the history of a flowing well there is a period when the gas pressure and volume are insufficient to cause a natural flow. The forces moving oil are not constant and the drainage area constantly decreases. When a well is drilled the pressure is relieved at that point allowing both oil and gas to escape. This reduction in pressure allows the volume of the gases to increase, thus they grow larger and bring oil with them as they approach the hole. As the resistance is greater for oil than for gas, the gas is usually exhausted first and this frequently means the economic limit of the production of oil. For in dissipating the gas, the oil has been robbed of its motive force and also of its lighter constituents and is left as a relatively heavy, viscous, dead oil with a high adhesive attraction and increased surface tension which the force of gravity is barely able to move.

Hydrostatic Pressure

Hydrostatic pressure is that force exerted by a liquid and is an active agent in the expulsion of oil. The pressure or head on the oil must be sufficient to overcome capillary attraction and pore friction. This force is enduring and usually constant throughout the life of the field. The hydrostatic head developed within a sand is directly proportional to the depth of the superimposed column of fluid. In many fields containing oil or gas sands it is found that the closed in initial pressure increases with depth and is proportional to the vertical depth below the outcrop of the strata in which the oil occurs. If edge water encroaches to fill the voids left by extraction of oil, theoretically, complete recovery could be expected. Under normal operating conditions, however, it seems improbable that it is capable of accomplishing anything more than a slow incomplete extraction.

The pores are wet with oil and afford no capillary attraction for the water. The surface tension of the oil being lower than that of the water will cause the oil to adhere to the walls of the pores and resist displacement by water.

The replacement of oil by water usually takes place very irregularly and is responsible for the trapping of large quantities of oil where a well or group of wells have flowed unrestricted and drawn the water through the coarser streaks in the sand. This unrestricted producing is also responsible for water coming around a well. In a field producing entirely by hydrostatic pressure or where gas pressure is very low and hydrostatic pressure high, great care must be taken in spacing the wells so that the water drive can be controlled.

The Hogback Field in the Navajo Reservation of New Mexico has no gas but the shut in hydrostatic pressure is approximately 200 pounds at the well head. This field probably will have no pressure depletion throughout its life but the wells cannot be produced too rapidly as water has a greater surface tension than the oil and therefore a corresponding decrease in capillary attraction, and will tend to bypass the oil. In fields of this type the rate of flow through sand should be determined and wells located and produced near the outer limits with a spacing that will give relatively periodic information on the progress of the water up the dip. But, unless its action is controlled on the producing wells by back pressure or restricted flow the water tends to finger out causing the oil to move at right angles to the direction of the predominating water movement. Advantage is taken of this factor where water flooding is practiced and wells are staggered. Naturally the most economic spacing is the triangular system having equal distances between wells.

Water flooding has its hazards. Certain chemicals in the water may unite with chemicals in the sand or oil, or the water may dissolve certain salts in the sand. Later these may be deposited due to lower saturation point of the solvent or by further chemical action. These deposits are frequently impervious and will dam the pore space.

Viscosity

Viscosity is the resistance of a liquid to flow and is responsible for a large percentage of the oil remaining in the sand under our present methods of production. But it is amenable to certain treatment and can be controlled to some extent.

Viscosity is greatly influenced by temperature. Viscosity temperature curves of petroleum when plotted to the proper scale are to all intents and purposes a straight line function. Not only do viscosity temperature curves become straight line functions when suitably plotted, but such straight lines for a wide variety of oils meet practically at a point or within a small area called "the origin of curves." It would appear then that the "mean point" may be used with suitable accuracy to determine the change in viscosity of an oil with temperature.

Since temperature is one of the prime factors that influences viscosity, it is essential that accurate temperatures of the sand be obtained in order that the effects of viscosity can be determined.

Since viscosity is the result of internal molecular attraction or friction, while

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*Petroleum engineer, Bureau of Mines, Department of Commerce. Paper presented at meeting of American Institute of Mining and Metallurgical Engineers, New York, February, 1926; published by permission of the director, Bureau of Mines.

PRESENT METHODS OF EXTRACTION ARE DECLARED VERY INEFFICIENT

Mr. Brewster says in his introduction present methods of extraction are very inefficient. From all data compiled it is evident that about three times as much oil remains in the sand after economic production has ceased as was originally produced.

Spacing is not so much a problem of determining how many acres a well will drain as it is of obtaining the greatest possible yield at the minimum expense. Property lines and surface restrictions should be disregarded and the economic spacing of wells should be governed by subsurface conditions. Both surface and subsurface conditions must enter into this problem.

Some important factors affecting production are: Structural position; thickness, porosity and grain size of the sand; gas pressure and hydrostatic pressure; viscosity, capillarity, adhesion and surface tension of the oil; dissolved and occluded gases; isothermal expansion and the gas oil ratio in lifting the oil.

Structural position has an important effect in that the life of the well, the amount of oil produced and the efficiency of the operation depend on this factor. The potential amount of recoverable oil is less at the limits of the field and theoretically could be handled by fewer wells. But to prevent water coning and the bypassing of water with the resultant entrapping of oil, the wells should be spaced so control can be maintained over water encroachment.

There is some justification for spacing wells near together in the direction of strike when it is assumed the movement of oil is up the dip. Theoretically a screen of closely spaced wells along the crest of the anticline and across the direction of flow would completely drain it under the influence of hydrostatic pressure. However, if drainage is due to gas pressure which acts equally in all directions, the wells should be logically placed nearer together in the direction of dip rather than in direction of strike as the well intersections with the sand are further apart as measured in the plane of the dip than they would be with reference to a horizontal plane.

PANHANDLE MERGERS EXPECTED TO HANDLE UNIT OPERATIONS THERE

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, 30 Church St., New York

NEW YORK, Feb. 22.—A merger of Texas Panhandle oil properties is anticipated in the financial district in the near future. Although negotiations are still in the initial stages, developments of the last few months point to the need of an early consummation. Although certain companies are almost certain to be asked into this consolidation, it cannot yet be said what ones will, in the end, actually appear in it.

The Texas Panhandle, centering in Hutchinson, Carson and Moore Counties, is rapidly approaching a stage of development where it is expected to contribute considerably to production of the country. But the nature of the field, both as to drilling and distance from the markets, makes it important that development proceed on more than a hit-and-miss basis. It will take considerable capital to bring the Panhandle district up to an important production basis.

Several prominent oil men and bankers interested for some years in the Panhandle Field have long realized conditions from an oil trade and financial viewpoint, and have formulated plans whereby several companies will be merged and financing done which will greatly hasten the actual development of considerable acreage in the district. Properties which may be consolidated will comprise at least 100,000 acres and perhaps several times that amount. It depends upon which concerns will be willing to join.

Basis of Mergers

The actual consummation of a merger depends upon two circumstances, first, a comparatively high price for crude oil, and, second, favorable conditions in the financial markets. The former is necessary, of course, to guarantee, to a reasonable extent, an adequate return on what investment may be made.

Interest was first aroused in the Texas Panhandle in 1919 when several big gas wells were brought in by the Amarillo Oil Co., the pioneer developer of the Panhandle district. This company is said to control some 400,000 acres, largely in Potter County. Several years ago the Prairie Oil & Gas Co. purchased a controlling interest in the Amarillo properties, and so far as known, this is the largest single tract owned or controlled by one company.

Ever since the Prairie purchase, various oil companies, large and small, have been picking up acreage in the Panhandle. Of course several concerns had owned acreage there before that. These have, for the most part, made no attempt to develop them.

It is believed that a very large oil pool will ultimately be uncovered in the Texas Panhandle, although it must be admitted that some geologists are skeptical. As

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Amount of Free Oil Decreasing Rapidly

High Costs of Operations Placing Production More and More in the Hands of Well Financed Concerns

By J. L. Dwyer

The number of individual oil producers in Oklahoma and Kansas is steadily decreasing, and with the decrease comes a natural decline in the quantity of free oil which is offered to the pipe lines for sale.

Oil production may be divided into two general classes, free and controlled. By controlled oil is meant oil which is produced by companies having their own pipe line facilities or affilations; and by free oil is meant oil produced by companies or individuals having no pipe line affiliations, and which is offered to the pipe line companies and other purchasers of crude oil.

In the early stages of Mid-Continent production, a huge percentage of the oil produced was free oil, but through the 20 years of its productive history, this condition has slowly been altered until today finds the percentage of free oil barely over the half mark. At the present rate of decline, 10 years hence will witness the sharpest imaginable competition among pipe lines for the greatly reduced amount of free oil.

Little Free Oil Available

While the figures illustrate that during 1925, the amount of free oil produced in Oklahoma and Kansas was half of the total production, today finds very little free oil available in either of these States, and the crude oil purchasers for the major pipe line systems are kept busy soliciting new pipe line connections.

This gradual change in the free oil may be attributed to many causes. Deeper drilling with its resultant higher costs, the application of geology, the use of the core drill, and promotion wells. Each of these factors wields its influence in reducing the free oil, and placing the bulk of the production in the hands of the larger companies.

Deeper drilling may be considered the prime cause of so many small operators fading out of the picture. In the days of the Cushing excitement wildcat wells could be drilled at a modest cost. Most of the wells drilled during that period had 2,500 feet as their ultimate depth, and this presents a harsh contrast to the 4,000-foot depth which the average wildcat of today must reach before the dry hole money is turned over. The cost of the 4,400-foot wells in the Garber Field is estimated at $75,000 each, and the investment necessary to finance such a venture automatically eliminates many of the small operators.

High Prices of Leases

The application of geology in purchasing wildcat acreage has also worked to the detriment of the small investor in oil leases. If a certain township is favorably considered, and has, for geological reasons, preference over the adjacent territory, the price of leases in the favored spot will mount alarmingly, but the next township will show no decrease, although its area may be frowned upon by the geological fraternity. The farmers and land owners of the unlikely region have little respect for the opinion of the geologist, and in leasing their land they are moved solely by the fact that John Brown over in the favorable region was paid $20 an acre for his lease. They will establish the same price, or occasionally a higher price for the lease on their land, and invariably will remain adamant until that figure is met. The price in the unfavorable area is merely a reflex action of the higher price paid in territory which to the geologist seems more favorable. When the price of leases jumps from a very nominal sum to $25 and $30 an acre through the purchase of one or two leases by a company playing geology, the small investor generally must seek other spots to purchase leases.

The use of the core drill has not become general over the Mid-Continent area, and its influence has only been felt in the vicinity of its operations. Regarded by the farmers with the same suspicion which greeted the "rock hound" five years ago, it invariably imparts a bullish trend to the price paid for leases around its workings. The farmer is not sure of what the company may find, and he ponders that it may be favorable and may be unfavorable to him, but to make sure he is inclined to set a high price on his lease.

Promotion Wells

The promotion wells are wells which are drilled by an individual or a smaller company, and the cost of which is shared by the purchasers of acreage surrounding the well. After selecting a block (and it is almost imperative that it has a structure upon it) the promoter attempts to dispose of acreage at a figure which will pay for the drilling of the well and leave a margin of profit. The closer to the well the acreage is located, the higher the price of the lease of course, and the offset is the most choice piece in the block.

The price paid is usually governed by the depth of the test, but the price of promotion acreage is generally of a sufficient figure to permit only companies of the larger size to invest. In the event that a producing well is found and a new pool opened up, the companies having the close-up leases are naturally rewarded for their enterprise, and in most wildcat strikes, the leases for a considerable

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Month—	1924 Estimated daily average pipe line runs of the ten major pipe line systems in Oklahoma and Kansas, showing "free" and "controlled" oil. Free	Controlled	Total	1924 Estimated daily average runs of all pipe line companies in Oklahoma and Kansas.	1925 Estimated daily average pipe line runs of the ten major pipe line systems in Oklahoma and Kansas, showing "free" and "controlled" oils. Free	Controlled	Total
January	117,892	178,481	296,373	478,652	189,036	232,892	421,928
February	120,274	189,049	309,323	504,637	187,741	235,529	423,270
March	133,806	192,740	326,546	507,632	178,413	228,300	406,713
April	150,424	199,467	349,891	534,247	188,753	226,174	414,927
May	178,262	188,456	366,718	541,290	198,083	232,619	430,712
June	204,115	196,680	400,795	572,569	194,521	230,039	424,560
July	190,875	199,460	390,335	579,776	187,431	226,359	413,790
August	185,939	199,312	385,251	622,868	181,082	240,418	421,500
September	181,403	208,558	389,961	629,999	186,027	256,824	442,851
October	208,576	229,159	437,735	616,359	185,918	254,694	440,612
November	213,277	227,536	440,813	620,176	170,508	266,133	436,641
December	196,636	234,936	431,572	621,498	169,830	242,789	412,619
Daily average for year	173,456	203,652	377,108	569,141	184,779	239,397	424,177
	Free oil ..... 45.9% of total				Free oil ..... 43.5% of total		

1925
Estimated daily average runs of the ten major pipe line systems in Oklahoma and Kansas*

	Total	Daily† Prod.
Prairie	145,000	28,000
Oklahoma P. L. Co. (Carter)	92,000	24,000
Sinclair	76,000	35,000
Ozark (Roxana)	42,000	39,000
Magnolia	38,000	23,000
Kay County (Marland)	36,000	32,000
Gypsy	34,000	27,000
Cosden	28,000	13,000
Empire	26,000	14,000
Texas	17,000	12,000
Total	534,000	247,000

*These figures include the Prairie runs in Texas and the Sinclair runs in Wyoming.

†The approximate daily production of their own and affiliated companies.

1925 Estimated Daily Average Runs of Smaller Pipe Line Systems Showing Free and Controlled Oil of Oklahoma

Company and Location—	Runs	Free	Cont'l'd
Anderson, Pritchard Co., Cyril	800	800	.....
Barnsdall Refining Co., Okmulgee and Bigheart	7,800	4,500	3,300
Bell oil & Gas Co., Grandfield	1,200	1,200	.....
Bolene Refining Co., Enid	3,000	3,000	.....
Cameron Refining Co., Ardmore	3,000	3,000	.....
Canfield Refining Co., Yale	150	150	.....
Champlin Refining Co., Enid	8,300	3,300	5,000
Continental Oil Co., Sapulpa	1,500	500	1,000
Cushing Refining Co., Blackwell	1,100	1,100	.....
Cushing Refining Co., Cushing	1,500	1,500	.....
Fairmount Refining Co., Fairmount	1,200	1,200	.....
Garber Refining Co., Garber	1,600	1,600	.....
Gilmer Oil Co., Ringling	1,050	1,050	.....
Globe Oil and Refining Co., Blackwell	4,500	4,500	.....
Hewitt Refining Co., Hewitt	700	700	.....
Illinois Refining Co., Cushing	1,350	1,350	.....
Imperial Refining Co., Ardmore	4,800	4,800	.....
Independent Oil & Gas Co., (Allied) Okmulgee	1,250	700	550
Interocean Refining Co., (Lorraine) Bristow	1,000	500	500
Johnson Oil Refining Co., Cleveland	3,500	3,500	.....
Mecca Refining Co., Allen	200	150	50
Pepper Gas Co., Covington	750	700	50
Pierce Oil Corp., Sand Springs	7,000	7,000	.....
Pure Oil Co., Ardmore	2,000	500	1,500
Pure Oil Co., Muskogee	2,000	.....	2,000
Riley Petroleum Co., Bristow	500	.....	500
Rock Island Refining Co., Duncan	2,250	1,750	500
Roland Oil Co., Bristow	550	.....	550
Sayre Refining Co., Sayre	125	125	.....
Shaffer Oil & Refining Co., Cushing	9,500	4,500	5,000
Sun Oil Co., Yale	2,500	100	2,400
Texas Pacific Coal & Oil Co., Wynnewood	1,400	400	1,000
Tidal Refining Co., Drumright	5,000	3,000	2,000
Transcontinental, Boynton	2,000	500	1,500
Transcontinental, Bristow	5,000	4,000	1,000
Tonkawa Petroleum Co., Tonkawa	900	900	.....
Western Oil Corp., Beckett	1,500	1,500	.....
Yale Oil Corp., Yale	600	600	.....
Total	93,075	64,675	28,400
	Free Oil—69.4% of Total		

1925 Estimated Daily Average Runs of Smaller Pipe Line Systems Showing Free and Controlled Oil of Kansas

Company and Location—	Runs	Free	Cont'l'd
Arkansas City Refining Co., Arkansas City	1,200	1,200	.....
Barnsdall Refining Co., Wichita	2,400	.....	2,400
Derby Oil & Refining Co., Wichita	2,800	1,300	1,500
El Dorado Refining Co., El Dorado	2,500	2,400	100
Golden Rule Refining Co., Wichita	500	500	.....
Kanotex Refining Co., Arkansas City	5,500	5,000	500
Kansas City Refining Co., Kansas City	3,700	.....	3,700
Miller Petroleum Co., Humboldt	200	200	.....
National Refining Co., Coffeyville	6,000	5,400	600
Peerless Oil Refining Co., Chanute	2,000	1,800	200
Skelly Oil Co., El Dorado	8,900	5,000	3,900
Vickers Petroleum Co., Potwin	2,800	2,800	.....
West Kansas Refining Co., Russell	1,250	1,250	.....
White Eagle Oil & Refining Co., Augusta	5,000	4,500	500
Wilhoit Refining Co., Joplin, Mo.	800	700	100
Total	45,550	32,050	13,500
	Free Oil—70.3% of Total		

Summary

	Runs	Free	Cont'l'd
Small pipe lines Oklahoma and Kansas Combined	138,625	96,725	41,900
	Free Oil—69.8% of Runs		
	Runs	Free	Cont'l'd
Combined runs of 10 major pipe line systems and small pipe line systems in Oklahoma and Kansas in 1925 showing free and controlled oil	562,802	281,504	281,297
	Total Free Oil —50.01%		

Basic Changes Caused Crude Advance

Gathering Momentum for Several Months and Crystallized in Withdrawal From Stocks in December. Background for Raise

By Charles E. Bowles
Petroleum Analyst, The Oil and Gas Journal

The industry generally has known that for over a year stocks of crude oil and refined products have been running well over a half-billion barrels.

This fact has been in the foreground so insistently that we had gotten to think more about big stocks than about basic conditions.

And so, when Mid-Continent crude was advanced several days ago the first question asked was "what about that half-billion barrels in storage?"

We had been looking at the foreground of the picture (big stocks) so long and so intensively that we had not noticed the slow change in the background—a change so vital that the background now becomes the foreground—and, temporarily at least, we have forgotten about the half-billion barrels in storage.

Drawing On Stocks

The merchant quickly learns that his real problem is not his "stocks," but his current business. And this simple economic fact was vigorously impressed on the oil industry a few days ago by a 25-cent raise in Mid-Continent crude.

A careful study of the accompanying table will show that the recent advance was the result of basic changes that have been gathering momentum for several months—and that the inevitable effect of these changes was crystallized when pipe line and tank farm stocks were drawn upon in December for over 4,000,000 bbls.

Looking along the line of "Supply, Domestic Crude," we find that the December production was 7,000,000 bbls. less than the peak last May—and that the May peak was over 8,000,000 bbls. more than the January production. And looking along the two lines of "Refined Products in Storage," we find that in July and August they were 20,000,000 bbls. higher than in January. And, during May, June and July, when we should have been drawing heavily on refined stocks, we increased them. Only during the last four months of 1925 did refined stocks decrease. At the close of the year they were over 6,000,000 bbls. less than during July and August.

Reason for Crude Advance

If we take into consideration the 7,000,000-bbl. decline in crude production, the 6,000,000-bbl. decline in stocks of refined products and the reduction, in December, of 4,347,000 bbls. in pipe line and tank farm storage, we have the background for the recent advance in the price of crude.

The general situation during the last half of 1925, and especially during the closing months, was essentially different from and better than the first half of the year.

Referring to the table we find that 1925 started off with a production of over 59,000,000 bbls. for January. This increased to over 68,000,000 bbls. in May—changed little for about six months—and then dropped quickly to less than 61,000,000 bbls. in December.

Aside from this slow swing of the crude oil production from 59,000,000 bbls. to 68,000,000 bbls. and then back to 61,000,000 bbls., the essence of the whole situation is reflected in the four items that make up "Demand" and that are shown under "Source of Difference." It should be clearly borne in mind that these four items indicate only the "changes" in the stocks, while the actual stocks themselves are shown at the bottom of the table under the caption "Total Petroleum Stocks."

Refinery Stocks

The amount of change in each of these four items for each month is indicated in the table—and it is interesting to note how, during the spring, summer and early fall the total refined products stocks increased. And, instead of a heavy reduction in refinery stocks in midsummer and a general increase in the closing months of the year, we find that exactly the opposite thing happened. The increase in stocks in midsummer is due more to the fact of abnormal production than of insufficient market. Markets were normal—production was abnormal—hence stocks went up at a season when they should have gone down.

And then, another unusual thing happened. The total "demand" for crude oil and refined products was as much in December as it was in October—and, strange to say, as it was in July.

Checking across the line headed "Demand—Domestic and Export," we find the last half of the year very substantially better than the first half—and October, November and December almost as good as June, July and August.

Turning to the "Total Stocks," at the bottom of the table, we find that January, 1925, ended with 515,000,000 bbls. of crude oil and refined products in storage. This built up to over 548,000,000 bbls. in July. It dropped slowly for four months—and then dropped over 5,000,000 bbls. in December.

Mid-Continent Situation

The pipe line and tank farm storage that was drawn upon so sharply in December was in the Mid-Continent—and, naturally, Mid-Continent crude prices were advanced.

Checking Mid-Continent crude production we do not find a startling drop in the aggregate production of this area during recent months. In fact the production of the entire country for December was only 500,000 bbls. less than in November.

Of course, in the background, we have the cumulative effect of a decline in crude production, extending over several months together with reductions in refined products stocks for the last four months.

And, with this very favorable background, we have the immediate cause of the raise—the withdrawal, in December, of over 4,000,000 bbls. from pipe line and tank farm storage.

For six months the pendulum of crude production and refined stocks has been on the "down" swing—and when, in December, pipe line and tank farm stocks of the entire country were reduced by over 4,000,000 bbls. a situation quickly crystallized that resulted in the advance in Mid-Continent crude.

We know, today, that when the figures for January are available they will show another decline in crude production. And if they also show a decline in refined stocks—along with a further reduction in pipe line and tank farm storage, there will undoubtedly be another increase in the price of crude—if, in fact, the advance does not come before the figures are available.

And even though we have in storage well over 500,000,000 bbls. of crude oil and refined products, the industry is so sensitive to the relation between current supply and current demand that, knowing that for months crude production has been declining and that it is still declining, the withdrawal of an amount equal to 1 per cent of our total pipe line and tank farm stocks would be sufficient to cause another increase.

The present situation is the composite result of two "long" swings and one "short" swing in basic conditions—one long swing, declining crude production—anther long swing, reductions in refined stocks—one short swing, heavy withdrawal from pipe line and tank farm storage.

And while the various factors in the accompanying table shift from month to month the three that are most vital in bringing about price changes are changes in crude production, changes in pipe line and tank farm stocks and changes in stocks of refined products. They may operate so as to offset each other and leave the general situation almost unchanged—or they may operate together and produce a decided change in basic conditions such as we have had in the last few months.

And, when these factors operate together, as they have recently done our storage of 500,000,000 bbls. becomes, temporarily, a matter of secondary importance—and prices go up.

TEXAS OIL MEN CONFER ON OIL AND GAS RULES

AUSTIN, Tex., Feb. 20.—Ten oil men, representing a large part of the producing industry of Texas, conferred with the oil and gas division on proposed oil and gas rules changes to conform to present field practices. No opposition was shown. One change permits, without hearings or red tape, drilling of wells less than 300 feet apart to different sands; another permits earthen storage of Gulf Coast crude; another permits storage tank within 100 feet of boiler. One requires sworn report of result of shooting well.

Oil men present were B. A. Hardey, State Line Oil & Gas Co.; J. L. Goggans, Chestnut & Smith Corp.; H. W. Hassell, Coltexo Corp.; Carl Minning and E. Buddius, Phillips Petroleum Co.; J. H. Tucker, Gulf Production; J. M. Rush, W. L. Todd, Simms Oil Co.; M. L. Spears, E. L. Smith Oil Co., and R. W. Richmond, Humble Oil & Refining Co.

TEXAS CITY SHIPMENTS

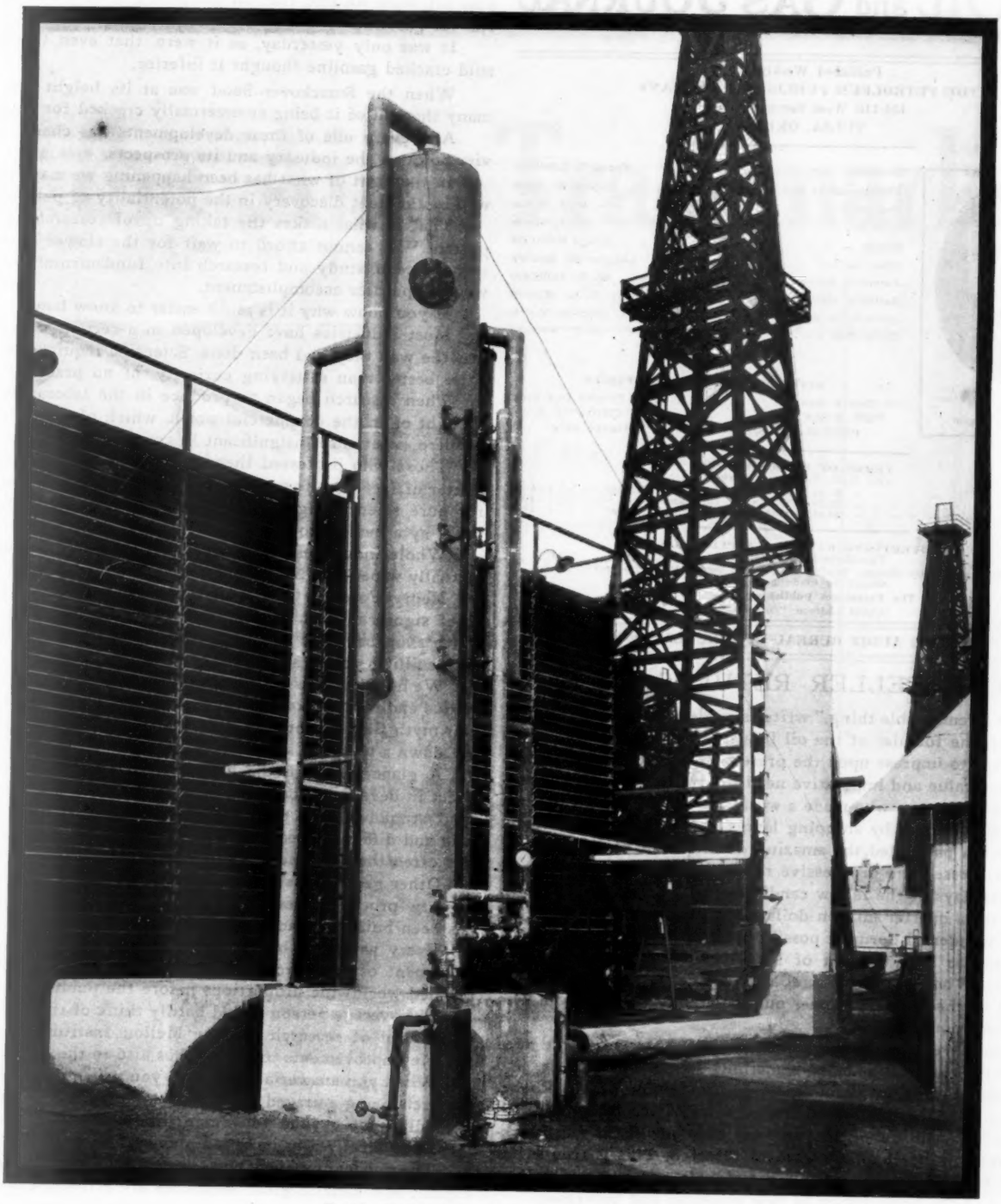
Bulk crude oil handled through he port of Texas City during January was as follows: Humble Oil & Refining Co., 983,498.40 bbls.; Vacuum Oil Co., 302,566.17 bbls.; Marland Refining Co., 614,793 bbls.; Swiftsure Petroleum Co., 76,614.67 bbls. Total, 1,977,472.24 bbls.

SUPPLY OF AND DEMAND FOR PETROLEUM AND ITS PRODUCTS IN 1925. COMPILED FROM THE LATEST REVISED FIGURES OF THE U. S. BUREAU OF MINES. PLEASE NOTE—LAST THREE FIGURES OMITTED IN ALL CASES.

	January	February	March	April	May	June	July	August	September	October	November	December
Supply—												
Domestic crude oil	59,519	54,045	60,433	61,431	68,082	66,676	67,313	66,887	64,708	64,352	61,459	60,942
Imports—all oil	8,425	7,287	8,041	6,889	8,001	7,222	5,848	5,333	4,903	5,315	5,807	5,130
Total supply	67,944	61,332	68,474	68,320	76,083	73,897	73,166	72,220	69,611	69,667	67,266	66,073
Demand—												
Domestic and export	64,219	55,185	62,026	64,487	65,725	69,576	71,214	74,000	68,733	71,699	68,501	71,520
Difference	3,725	6,147	6,448	3,833	10,358	4,321	1,952	*1,780	878	*2,032	*1,235	*5,447
Source of Difference—increase in												
1—Pipe line and tank farm stocks	*1,135	322	1,330	7,448	6,519	*610	471	1,804	2,808	2,526	1,428	*4,347
2—Crude oil at refineries	1,182	580	*334	*159	*39	1,467	425	*3,592	*55	*2,627	*889	13
3—Foreign crude not at refineries	*141	*69	*125	324	303	*136	28	*106	*71	*212	52	*172
4—Refined products at refineries	3,819	5,314	5,577	1,220	3,675	3,600	1,030	114	*1,804	*1,719	*1,826	*941
Total change	3,725	6,147	6,448	3,833	10,358	4,321	1,952	*1,780	878	*2,032	*1,235	*5,447
On a Daily Basis—												
The supply was	2,191	2,190	2,208	2,277	2,454	2,463	2,360	2,330	2,320	2,351	2,242	2,131
The demand was	2,071	1,970	2,000	2,149	2,120	2,319	2,297	2,387	2,291	2,313	2,283	2,307
Surplus or storage	120	220	207	128	334	144	63	*57	29	*62	*41	*176
Total Petroleum Stocks												
(a)—Pipe line and tank farm:												
East of California	277,240	275,992	275,536	275,205	278,644	275,960	273,206	271,479	269,582	269,403	268,967	263,724
California light	42,102	42,706	43,577	44,543	45,359	45,226	44,269	41,300	42,758	43,773	44,426	44,323
California heavy (1)	56,812	57,777	58,693	60,506	62,770	64,977	69,159	75,659	78,905	80,596	81,807	81,806
(b)—Crude at refineries East of California	32,366	32,946	32,612	32,454	32,415	33,882	34,307	30,715	30,660	28,033	27,144	27,157
(c)—Foreign crude not at refineries	593	524	399	723	1,026	890	916	810	739	527	579	407
(d)—Refined products at refineries:												
Gasoline	34,600	38,545	41,600	40,973	40,879	40,362	38,352	36,684	36,051	36,411	37,854	39,245
Other products (2)	71,558	72,927	75,448	77,295	80,964	85,081	88,121	89,903	88,732	86,653	83,384	81,051
Total stocks	515,271	521,417	527,865	531,699	542,057	546,378	548,330	546,550	547,428	545,396	544,161	538,714

(1)—Includes fuel oil in storage in California.
(2)—Does not include fuel oil in storage in California.
Please note—Decreases are shown by both * and **blackface** type.. Increases are in lightface type.

ANOTHER BIG ADVANCE IN ABSORPTION PLANT EFFICIENCY



Pacific National Gasoline Co., Los Angeles

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Gasoline distillation:

Gravity	72.5	Be.
I. B. P.	82°	F
End Point	375	
Recovery	92.5	
Water Bath	48	
Color	25+	

Plant efficiency 30 lbs. pressure.

Charcoal test 100%, equal to 125% of Standard charcoal test.

Loss of absorption medium 2% of gasoline production, including all leaks and losses.

Dry gas test .11 with 30 lbs. test.

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Kennedy Bldg.,
Tulsa, Okla.

REFINERS CONSTRUCTION CO.,
Transportation Bldg.,
Los Angeles, Calif.

TOM McGUIRE
First Nat'l Bank Bldg.,
Denver, Colo.

NEWTON PROCESS MANUFACTURING CO., Fullerton, Calif.

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PRODUCING REFINING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle

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TERMS OF SUBSCRIPTION
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Single copies - - - - - - - - - $ .15 One year (in United States) - - - $6.00
Three months - - - - - - - - - $2.00 One year (in Canada) - - - - - $7.00
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MR. ROCKEFELLER RETURNS TO LEAD

"What a remarkable thing," writes a reader, "was it for John D. Rockefeller, the founder of the oil industry, to emerge from years of retirement to impress upon the present generation of oil leaders the immense value and imperative need for research in petroleum."

Here was the man who made a world market for kerosene, then the chief oil product, by shipping lamps to the ends of the earth, whose life has paralleled the amazing development of refining and who has witnessed the progressive revolution in the utilization of oil from the days of the tallow candle to the flight of the airplane, backing with a quarter million dollars his judgment that there are still more wonderful dormant possibilities in that mysterious fluid.

No one has ever thought of Mr. Rockefeller as visionary or impractical. When he, at his age, after all he has seen in the development of the industry, comes out so actively for research, who can hold back doubting?

If there have been those who have been indifferent to the need for petroleum research, as being something solely for scientists and of no practical value, let them reflect on the opinion of Mr. Rockefeller, who, at 86, retains the quality of enterprising leadership.

It has been said the oil industry has been one of the most backward in availing itself of the work of research. This is true so far as united effort is concerned but individuals and companies have not lagged in the exploitation of new practices and processes.

Where there has been a lack is in the encouragement by the industry at large of purely scientific research as distinguished from development for a practical result.

Extraordinary progress has been made in the application and extension of inventions and discoveries which have enabled the industry to supply an enormously increased demand with a proportionately far smaller crude supply, to penetrate deeper and deeper into the earth to recover oil, but new disclosures are constantly dwarfing the significance of past accomplishments.

We are continually having to revise our judgments on the quality and value of our raw material, just as the industry had to revise its notion that it was safe to offer to drink all the oil that would ever be produced west of the Mississippi River.

Many can remember when western oil was thought good only for fuel, not to be compared with eastern oil for making gasoline.

A year or so back the growing use of oil for domestic heating was welcomed as a solution of the problem of disposing of surplus fuel oil. Now we find fuel oil competing with crude as raw material for gasoline.

It was only yesterday, as it were, that even the dealers who sold cracked gasoline thought it inferior.

When the Smackover flood was at its height last year, how many thought of it being commercially cracked for gasoline?

And every one of these developments has changed the entire viewpoint of the industry and its prospects.

In the light of what has been happening we may well ask what will be the next discovery in the potentiality of petroleum.

That is what makes the taking up of research so vitally important. We cannot afford to wait for the slower development of experience if study and research into fundamentals will light the way to speedier accomplishment.

If you know why it is much easier to know how.

Most industries have developed in a certain way because that was the way they had been done. Scientific inquiry was considered little better than satisfying curiosity, of no practical application.

Then research began to produce in the laboratory effects unthought of in the commercial world, which often made the results of mere experience insignificant in comparison.

Those who professed themselves to be the most practical and matter of fact were forced to recognize that the student of research for pure science might any day topple over everything they had built, by a new discovery.

Whole industries that seemed indispensable found themselves virtually wiped out. New industries undreamed of took their places.

Henry Ford has just bought the famous village smithy. The chief significance of that incident is the reminder that the blacksmith shop has been supplanted by the garage and the feed store by the filling station as a result of research.

We heard a lot as we got into the war about American inventive genius ending that conflict in quick order. The "inventor" is a popular myth like that other notion that all an oil man has to do is to put down a well and strike oil.

A glance through the list of discoveries that have had most effect in developing our civilization will show that for one "invention" stumbled upon there were thousands that were the result of long and difficult research. What we think of as a lucky invention was often the outcome of laborious effort, perhaps over a lifetime.

Other great industries are spending millions on research, finding new processes, new materials. A great American dye industry has been built up since the war.

Every woman is buying rayon products nowadays yet the development of the rayon industry has been so sudden that it had reached worldwide proportions before the public heard of it.

The average person would hardly think of the laundry business as in need of research but the Mellon Institute has contributed notable improvements to it, as it has also to the bread industry.

When you answer a phone call you never think of the constant research being pursued in the laboratories of the Bell company, extending far beyond telephone transmission into radio development and electrically recorded phonograph records.

The rubber, vitrified clay, cement, cellulose, gelatin and glue, asphalt and metallurgical industries are actively engaged in scientific research with resulting improvements to their own profit and to the advantage of the public.

What the General Motors Research Corporation is doing is familiar to oil men through the addresses of Kettering and Midgely.

With the increasing understanding and application of research to modern industry there has come a recognition of the value of purely scientific study without immediate profit-making aim. It is upon this purely scientific study that industrial research can be most hopefully and helpfully based and from which most may be expected. And it is in that department that the oil industry is in greatest need to lead and supplement the work being done in industrial laboratories for practical application.

Purely scientific research, offering no incentive of direct profit but of incalculable promise to the industry, requires just such support as has been inaugurated by Mr. Rockefeller's gift.

for the Ajax Trademark

It was the performance of the first Ajax built that started this drilling engine on the way towards its leadership in every oil field. In that engine and in the thousands that have followed it, we make certain of this performance by careful attention to the quality of every part that goes into it. When the time comes that wearing parts have to be replaced, look for the Ajax trademark when buying the replacements. Genuine Ajax parts maintain the original value of the engine and its original performance.

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34145

DRILLING ENGINES

Automatic Control for Rotary Wells

Optimum of Drilling Efficiency and the Elimination of Excessive Strain Claimed for New Device

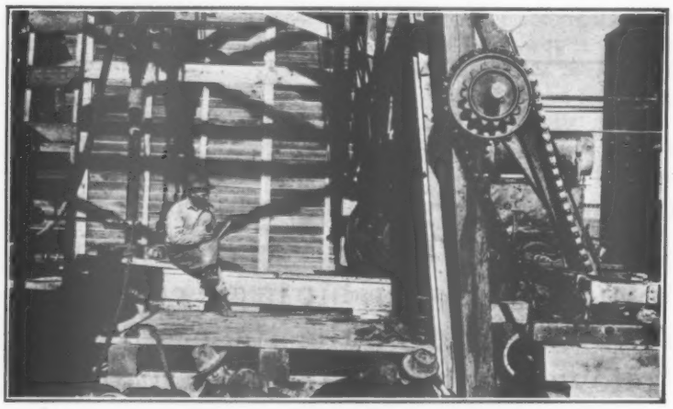
A most important step in improving the methods of rotary drilling has been taken by Erle P. Halliburton, of Duncan, Okla., in an invention he has made which is said to provide a method and apparatus for drilling wells by which the forces applied to the drill stem may be automatically controlled to maintain the optimum drilling efficiency and, at the same time, obviate excessive strains on the drilling equipment. It is claimed the device automatically maintains a uniform and constant well drilling operation by inversely varying the feeding pressure applied to the drill bit to compensate for fluctuations in the resistance encountered to the rotation of the drill stem. It also provides a method and apparatus for drilling wells by which a predetermined constant torque may be applied to and maintained on the drill stem, so as to increase the efficiency of the drilling operation and eliminate the hazards of excessive strain upon the apparatus. This is accomplished by applying the power to the drill stem through two paths, the power through one path placing a predetermined constant driving torque on the drill stem and the power through the other path regulating the feeding pressure applied to the bit carried by the drill stem and, by diverting power from one path to the other to maintain the forces in the two paths in such balance that the driving torque will remain substantially constant.

A little more than six years ago Mr. Halliburton realized the advantage and necessity of a method of drilling wells by an automatic drilling machine, whereby a fixed, constant torque could be applied to the drill pipe and he started at that time to devise such an apparatus. After considerable experiments, he decided to apply the principle of the mechanical differential, superimposed between the drawworks and the rotary member, balancing the forces between these members in such a manner as to obtain the desired results.

Used Automobile Engine

By pressing into service certain parts of a well-known automobile truck, including the motor, transmission and differential, a small machine was built and applied to a small rotary drilling machine of a popular make. A well was drilled to a total depth of 562 feet and the results were so satisfactory that with the cooperation of the Union Tool Co., a machine has now been developed that has proved entirely satisfactory for deep drilling in the fields of California where it has been used in a number of wells. In this connection, Mr. Halliburton gives much credit to the executives and field forces of the St. Helens Petroleum Co. of California, the Union Oil Co., the Shell Oil Co. and the Standard Oil Co. of California.

The first machine was placed in operation in 1924 and has been in service ever since. It is said to be in first class condition at this time, showing very little wear. Little or no change has been made in the device since then.



Rotary connected with automobile truck engine.

Every person connected with the oil business knowns what it is to get an automobile stuck in the mud. It is a known fact that in such cases, the rear wheel experiencing the least resistance shows a tendency to spin. It is because of this fact, boards or other material are placed under this wheel to provide greater resistance. The operation of Mr. Halliburton's new automatic rotary drilling control is based on the same principle.

For example, suppose a powerful automobile motor truck were backed up to a rotary drilling rig and the rear end of the truck were jacked up, with the rear wheels taken off, and suitable chain sprockets substituted. Suppose the rotary chain were disconnected from the line shaft and the rotary connected to one of the sprockets of the truck. Then if the steam engine be disconnected and the other sprocket on the automobile truck be connected to the line shaft (provided the gear ratios are correct), the arrangement provides an automatic drilling control.

Example of Operation

For example, say the well is down 1,200 feet, with the bit on the bottom and the drum brakes fully released, allowing the full weight of the drill pipe to rest on the bit. If the truck engine be started, it is obvious the sprocket with the least resistance will start turning, due to the action of the differential inside the rear axle housing of the truck, and, since the lines are slack on the drum, the differential sprocket connected to the line shaft will have the least resistance. As the drum begins to turn and hoist the slack out of the 1,200 feet of drill pipe, the resistance on the drum side of the differential will begin to increase, and, because some of the 1,200 feet of drill pipe is being lifted from the bit, the resistance on the rotary side of the differential will decrease.

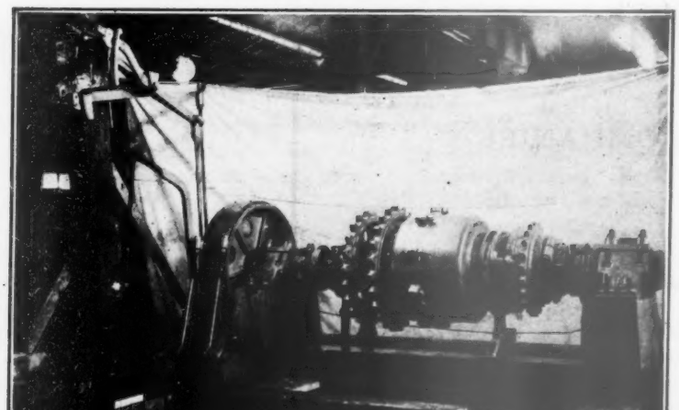
This operation of increasing the resistance on the drum side of the differential and decreasing the resistance on the rotary side will continue until the differential reaches a state of equilibrium before the entire weight of the 1,200 feet of drill pipe has been raised. When the differential reaches an equilibrium, the rotary side of the differential becomes the moving side and rotation of the drill pipe begins, because it takes more power to hoist the entire string of pipe than it takes to turn the rotary after some of the downward pressure on the bit has been relieved by suspending a certain amount of the upper portion of the drill pipe.

In Drilling Operations

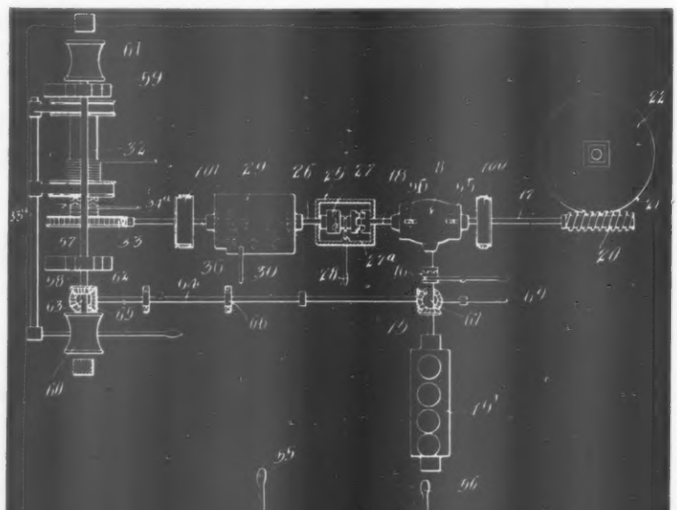
During drilling operations, there is ever present a tendency for the operations to maintain a state of equilibrium. There is a tendency for the resistance on the rotary to decrease as the bit deepens the hole ahead of it. There is a tendency to decrease the unsuspended portion of the drill pipe as the bit deepens the hole ahead of it. There is a tendency to decrease the pressure forcing the bit to do its work as the bit deepens the hole. There is a tendency to increase the portion of the drill pipe suspended by the drawworks as the bit deepens the hole.

It can be seen the drawworks drum will back off when the suspended weight of the drill pipe is slightly less than the resistance offered by the rotary and will hoist the drill pipe when the resistance offered the rotary by the bit is slightly greater than the resistance offered the drawworks drum by the suspended weight of the drill pipe.

(Continued on Page 131)



Automatic drawworks feed.



Upper—Diagrammatic plan view of the power and force transmission and associated parts. Lower—Detailed section of the differential illustrated above.

North Central Texas

By George R. Kelley

Archer County continues to gain, furnishing more than third of new production. Texhoma Co. has two good producers in Oldham Pool. Four new completions in Mitchell County. Promise of another shallow pool in northern Brown County. Week's production shows loss of 1,695 bbls.

FORT WORTH Tex., Feb. 22.—Although for more than a year Archer County has had the distinction of being the busiest spot in the North Texas oil territory, activity in that county seems to be gaining rather than declining. During the past week there were a total of 40 completions in the county, out of a grand total of 94 for the entire north and central Texas territory. The county also furnished more than one-third of the new production for the week, 1,660 bbls. out of a total for the territory of 3,752 bbls.

Although not yet completed, the Texhoma Oil & Refining Co. has two unusually good producers in the Oldham Pool in the south half of the county. No. 11 Oldham is swabbing at the rate of 360 bbls. daily from sand topped at 1,336 feet and drilled into only 3 feet. No. 3 Wolf is reported swabbing oil at the rate of 600 bbls. daily from sand topped at 1,313 feet and drilled to a total depth of 1,348 feet.

Among this week's completions in this field are four by the Waite Phillips Co. on the T. B. Wilson lands, Nos. 11-B, 12-B, 13-B and 14-B, all good producers and all producing from the regular 1,700-foot pay sand in that area. They are making 45 bbls., 70 bbls., 85 bbls. and 75 bbls. respectively. Also Staley and others have three new completions on the Parrish land. Nos. 2, 3 and 4, all producing from the 1,585 foot pay sand and making 70 bbls., 95 bbls. and 100 bbls. respectively.

Also in the south half of the county the Pandem Oil Corp. has completed three wells on the Cockrell lease, listed as good producers for some time but not completed. They are the Nos. 6, 7 and 8 Cockrell, producing from the sand at 1,450 feet and making 75, 50 and 100 bbls. respectively. In the Kreeger Pool just east of the town of Megargel there are three new completions, all on the Kreeger land and all producing from the upper Harmel sand at 1,420 to 1,430 feet. The Prairie Oil & Gas Co.'s No. 1 Kreeger, is making 120 bbls daily, the Roxana Petroleum Corp.'s No. 1 Kreeger is making 135 bbls. and the Wampem O l Corp.'s No. 2 Kreeger, is making 160 bbls. daily.

New Producers in Mitchell County

There are four new producers completed in Mitchell County, some showing considerable oil for several days. The California Co. has completed No. 1 Adams, making 45 bbls, daily from the regular pay at 3,070 feet and its No. 1 Swenson is rated at a 75-bbl. producer from the same pay at 3,065 feet.

The Atlantic Oil Producing Co.'s No. 2 Womack in Mitchell County, is also a new producer making 140 bbls. daily from the pay at 3,075 feet and the Magnolia Petroleum Co.'s No. 1 Watson, is a new producer from the shallow sand, making 45 bbls. from a total depth of 2,870 feet.

Stephens County accounted for two compartively small gassers this week, both producing from the semishallow sands. Edison and others' No. 1 Houston, is making 5,000,000 feet of gas daily from a total depth of 1,887 feet, and Kingston and others' No. 1 Powell, is good for 5,000,000 feet at 1,926 feet.

Anderson and others have what promises to be the opening up of another new shallow pool in the north half of Brown County. Their No. 1 Allen is making 100 bbls of oil daily and 1,000,000 feet of gas from the sand at 1,086 feet. This is about the best well that has ever been completed in Brown County from the shallower sand, most of the good wells in the county being producers in the sand at slightly less than 1,300 feet.

Nothing of unusual interest is reported from the far west Texas district, around Reagan, Crockett and Upton counties. Carl Cromwell's No. 1 Powell formerly Wate and others is reported to have swabbed a total of 850 bbls. of oil since it started swabbing last week. Preparations are being made to shoot this well and put it on the pump. It is estimated good for 125 bbls. daily on the pump as it stands.

In the same general district the Humble Oil & Refining Co.'s No. 1 Sorg, encountered the top of the pay at 2,651 feet and at last reports was drilled at 2,660 feet with several hundred feet of oil standing in the hole. This well got the pay a little more than 50 feet lower than it was found in the No. 1 Powell, or the discovery well.

Production Declining

Production is gradually declining in this territory, this week's loss being somewhat heavier than usual. Total daily average runs for this week are 160,-415 bbls. compared with a total last week of 162,110 bbls., showing a loss of 1,695 bbls daily. The decline cannot be attributed to any one particular field, but rather to a slight drop in practically all the older producing areas.

Out of the total 94 completions this week, 59 are oil producers, 32 are failures and 3 are gassers. The 59 producers accounted for a total new production of only 3,752 bbls. considerably short of the amount necessary to offset the natural decline in older wells. With seven new producers in Wilbarger County there was only 390 bbls. of new production and two new completions in Reagan County provided only 670 bbls. of new production.

The following table gives the completions together with new production by counties:

County—	Comp.	Prod.	Dry	Gas	New Prod.
Wichita	9	4	5	0	67
Wilbarger	8	7	1	0	390
Archer	40	27	13	0	1,660
Young	9	4	5	0	205
*Stephens	4	1	1	2	80
Eastland	2	2	0	0	130
Callahan	2	1	1	0	5
Mitchell	5	4	1	0	205
*Brown	5	3	1	1	140
Reagan	2	2	0	0	670
Crockett	1	1	0	0	10
Montague	2	2	0	0	60
Garza	1	0	1	0	...
Shackelford	2	1	1	0	30
Palo Pinto	1	0	1	0	...
Coleman	1	0	1	0	...
Total this wk.	94	59	32	3	3,752
Total last wk.	88	51	35	2	4,425
Difference	6	8	3	1	673

*Stephens County had 10,000,000 feet of gas from two gas wells and Brown County had 5,000,000 feet from one new gasser.

Late News From the Fields

TEXAS PANHANDLE

AMARILLO, Tex., Feb. 22.—There are five new producers in the Panhandle Field, according to latest reports. These are in addition to the Canadian River Oil Co.'s No. 1 Kingsland which came in a week ago and which has been increasing its flow the past few days and now rated as a 900-bbl. producer and the No. 5 Burnett of the American Refining Co., which is still flowing at the rate of 250 bbls. daily, which was also reported in about a week ago.

All the new producers are in the south half of Hutchinson County. McIlroy & Herring's No. 1 Smith is swabbing 125 bbls. daily from the pay at 2,827 to 2,-830 feet.

McIlroy Brothers' No. 2 Smith, the largest of the new producers, is making 1,000 bbls. daily according to the latest 24-hour test. It is producing after a shot of 210 quarts of nitro placed at 2,815 to 2,885 feet.

McKinney and others' No. 1 Weatherly has been shot with 90 quarts of nitro at 3,014 to 3,036 feet and is estimated making 20 bbls. daily following the shot. The New Domain Oil Co.'s No. 1 Borton promises a good producer. It hit the top of the pay at 3,132 feet and is swabbing oil at the rate of 50 bbls. daily. It is probable it will be drilled deeper.

The Travelers Oil Co.'s No. 1 Kingsland is showing prospects for big production, is making considerable gas and spraying and flowing about 90 bbls. a day from the pay at 2,879 to 2,882 feet. Since at this depth the well has only three feet of pay it is regarded as promising a good producer.

The Marland Oil Co. has recompleted No. 4 Burnett, in Carson County. It was originally completed late last October at 3,045 feet with an initial production of 75 bbls. This declined and it was decided to drill deeper. New pay was encountered at 3,051 feet and at a total depth of 3,057 feet the well is flowing at the rate of 180 bbls. daily.

Following the report that the Phillips Co. had purchased a half interest in the Hutchinson County holdings of the Gibson Oil Corp., it is announced Phillips has an option on the property, or a part of the properties of the South Hutchinson Oil Co., south of the Canadian River, in Hutchinson County. The property under option consists of one 320-acre block in Section 13, Block Y of the Morris & Cummings Survey, J. A. Whittenburg lands, and an 80-acre block out of the Whittenburg located in the northwest quarter of Section 12 and the north half of Section 13 of the same block and survey.

There is one well on the 80-acre tract, No. 1 J. A. Whittenburg, making an average daily production of 425 bbls. There are two wells now drilling on the 320-acre lease. The consideration is reported to be $400,000 in cash and $600,-000 out of one-third of the oil produced from the properties.

Practically all the major supply companies have branch houses in Panhandle, on the main line of the Santa Fe, the nearest railroad point to the center of oil activity. Among the supply houses

(Continued on page 134)

PRODUCTION REPORT
Week Ending February 18, 1926

Gulf Production Co.	475	
Humble Oil & Refining Co.	365	
Magnolia Petroleum Co.	2,705	
Panhandle Refining Co.	250	
Prairie Oil & Gas Co.	50	
Sinclair Oil & Gas Co.	55	
Sun Oil Co.	65	
The Texas Co.	370	
Texhoma Oil & Refining Co.	495	
Miscellaneous	7,740	
Total		12,570
Electra		
Empire Gas & Fuel Co.	900	
Gulf Production Co.	935	
Humble Oil & Refining Co.	100	
Magnolia Petroleum Co.	3,215	
Panhandle Refining Co.	50	
Phillips Petroleum Co.	15	
Prairie Oil & Gas Co.	130	
The Texas Co.	3,515	
Texhoma Oil & Refining Co.	1,540	
Miscellaneous	6,140	
Total		16,540
Iowa Park		
Gulf Production Co.	120	
Humble Oil & Refining Co.	210	
Magnolia Petroleum Co.	520	
Panhandle Refining Co.	35	
The Texas Co.	305	
Texhoma Oil & Refining Co.	30	
Miscellaneous	3,500	
Total		4,720
Wilbarger		
Gulf Production Co.	55	
Humble Oil & Refining Co.	3,795	
Landreth Production Co.	3,895	
Prairie Oil & Gas Co.	85	
The Texas Co.	70	
Miscellaneous	5,750	
Total		13,650
Archer County		
Empire Gas & Fuel Co.	845	
Gulf Production Co.	2,230	
Humble Oil & Refining Co.	550	
Independent Oil & Gas Co.	25	
Magnolia Petroleum Co.	1,635	
Panhandle Refining Co.	115	
Phillips Petroleum Co.	915	
Waite Phillips	1,205	
Prairie Oil & Gas Co.	2,720	
Sun Oil Co.	305	
The Texas Co.	3,160	
Texhoma Oil & Refining Co.	2,780	
Miscellaneous	16,320	
Total		32,835
Stephens County		
Empire Gas & Fuel Co.	25	
Gulf Production Co.	1,410	
Humble Oil & Refining Co.	670	
Magnolia Petroleum Co.	400	
Mid-Kansas Oil & Gas Co.	1,355	
Phillips Petroleum Co.	25	
Prairie Oil & Gas Co.	955	
Sinclair Oil & Gas Co.	70	
Sun Oil Co.	150	
The Texas Co.	1,070	
Texas Pacific Coal & Oil Co.	1,150	
Miscellaneous	5,415	
Total		12,695
Ranger		
Gulf Production Co.	250	
Humble Oil & Refining Co.	25	
Magnolia Petroleum Co.	945	
Mid-Kansas Oil & Gas Co.	150	
Panhandle Refining Co.	130	
Prairie Oil & Gas Co.	625	
Sinclair Oil & Gas Co.	325	
The Texas Co.	155	
Texas Pacific Coal & Oil Co.	735	
Miscellaneous	2,200	
Total		5,540
Moran		
Empire Gas & Fuel Co.	25	
Humble Oil & Refining Co.	10	
Magnolia Petroleum Co.	50	
Phillips Petroleum Co.	675	
Prairie Oil & Gas Co.	10	
The Texas Co.	270	
Texhoma Oil & Refining Co.	85	
Miscellaneous	1,230	
Total		2,355
Young County		
Gulf Production Co.	205	
Humble Oil & Refining Co.	370	
Magnolia Petroleum Co.	220	
Panhandle Refining Co.	145	
Phillips Petroleum Co.	10	
Prairie Oil & Gas Co.	10	
Sinclair Oil & Gas Co.	360	
Sun Oil Co.	60	
The Texas Co.	555	
Texhoma Oil & Refining Co.	455	
Miscellaneous	5,340	
Total		7,730
Eastland-Comanche		
Empire Gas & Fuel Co.	10	
Humble Oil & Refining Co.	140	
Magnolia Petroleum Co.	690	
Mid-Kansas Oil & Gas Co.	185	
Phillips Petroleum Co.	35	
Prairie Oil & Gas Co.	125	
Sinclair Oil & Gas Co.	25	
The Texas Co.	130	
Texas Pacific Coal & Oil Co.	105	
Miscellaneous	1,340	
Total		2,785
Panhandle		
Hutchinson County	2,890	
Carson County	1,880	
Gray County	160	
Wheeler County	70	
Potter County	30	
Total		5,030
Miscellaneous Pools		
Clay County	425	
Montague County	1,140	
Jack County	100	
Throckmorton County	125	
Bayler County	350	
Palo Pinto County	455	
Brown County	2,515	
Coleman County	275	
Callahan County	4,635	

(Continued on Page 132)

Announcement

PITTSBURGH REINFORCED
BRAZING & MACHINE
COMPANY

PITTSBURGH, PENNSYLVANIA

manufacturers of

Valves **KEROTEST** Fittings

ANNOUNCE THE CHANGE OF THEIR
CORPORATE TITLE TO

Kerotest
Manufacturing Company

Effective March 1st, 1926

Distributors

Grinnell Co. of the Pacific
LOS ANGELES SAN FRANCISCO

Oil Well Supply Company
OKLAHOMA KANSAS COLORADO
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Norvell-Wilder Hardware Co.
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Export Distributors
Oil Well Supply Company
PITTSBURGH NEW YORK TAMPICO LONDON

Oklahoma Field Operations

By J. L. Dwyer

Four Wilcox sand wells in the Wewoka Field producing more oil than the 140 Smith sand wells in same field. Sinclair Oil & Gas Co.'s No. 26 Hartley, in Garber Field, produced over 28,000 bbls. in five days, from new sand. New field work continues active and is widely scattered.

Four Wilcox sand wells recently completed in the south end of the Wewoka Field and close to the Seminole-Hughes County line were producing more oil Sunday than all the 140 Smith sand wells in the main body of the field. The latest well in the field is the Homa-Okla Oil Co. and New England Oil & Pipe Line Co.'s No. 2 Carolina, C SE NE NE, Section 6-7-8, which started at 67 bbls. an hour from sand at 4,106 feet, drilled in only 2 feet. The oil is 40.4 degrees in gravity. This well and the Magnolia Petroleum Co.'s discovery well in the C NW NW NW, Section 5-7-8; the same company's well, a location north in the C SW SW SW, Section 31-8-8; W. R. Ramsey's well in the C SE SE SE, Section 30, produced on Sunday a total of 8,813 bbls., while the 140 Smith sand wells produced 8,702 bbls., a total for the field of 17,515 bbls.

It was another week of great activity in new work, the new rigs and wells drilling being considerably more than the number of wells completed. The "play" is not confined to any particular localities, but is well scattered through the territory comprising the general Oklahoma oil region.

There is a large numer of No. 1 wells drilling on heretofore undrilled leases, and these are being closely watched for results.

One of the features of the week was the big production of oil from the Sinclair Oil & Gas Co.'s No. 26 Hartley from a 2,700-foot sand hitherto unknown in the Garber Field. This well which started at 4,600 bbls. on Wednesday was reported as having produced 5,330 bbls. of oil for the 24 hours endng Monday morning at 7 o'clock. It is also producing a large volume of water.

The Kingwood Oil Co.'s No. 1 Lowe, C NE SW SE, Section 29-8-9, Hughes County, was showing 500,000 feet of gas at 3,410-15 feet. The Waite Phillips Co.'s No. 1 Harjo, C NW NW NW, Section 35-9-9, Hughes County, had a hole full of water from sand at 3,442-44 feet. The Indian Territory Illuminating Oil Co.'s No. 1 Dyer, C NW NW SE, Section 24-9-6, Seminole County, got sand at 3,710 feet and the hole filled 150 feet with oil. None of the three wells is a completion.

Later Reports on Important Wells

A later report on a number of wells mentioned last week, but not then completed, shows the following results:

In the Burbank Field, Osage County, the Phillips Petroleum Co.'s No. 5, SW cor. NW SW, Section 2-27-5, was shot with 40 quarts in sand at 2,958-3,029 feet, and made 175 bbls. the ensuing 24 hours. The same company's No. 11, in the NE SE Section 2-27-5, was given a 140-quart shot in sand at 2,911-68 feet and responded with an 18-hour production of 317 bbls.

The Mid-Continent Petroleum Corp.'s No. 2 Earp, SW cor. NW NW, Section 8-15-6, Lincoln County, made 1,120 bbls. the first 24 hours from sand at 4,028-35 feet and later was reported at 920 bbls. a day.

The Southwestern Petroleum Co.'s No. 1 Robertson, in the NW NE, Section 11-14-5, Lincoln County, which flowed 170 bbls. the first 4½ hours from sand at 3,365-3,411 feet was given a shot and produced 960 bbls. the ensuing 24 hours.

Morgan & Flynn's No. 1 Sullivan, C NW NW SE, Section 10-9-5, Seminole County, about 3 miles east of Earlsboro, Pottawatomie County, was given a 10-quart shot in sand at 3,557-73 feet, and started at 200 bbls., later being reported as making 180 bbls. a day.

The Magnolia Petroleum Co.'s No. 1 Carolina, C SW SW NW, Section 14-8-7, Seminole County, which started at 45 bbls. an hour from sand at 3,178-85 feet, was later reported to have made 800 bbls. the first 24 hours.

W. D. Ramsey's No. 4 Amos, C SE SE SE, Section 31-8-8, produced 1,320 bbls. the first 24 hours from sand at 4,-158-60 feet.

The Magnolia Petroleum Co.'s No. 12 Sukovaty, C SE SW NW, Section 2-14-5, made 150 bbls. a day from sand at 3,299-3,389 feet, but completion was held up by a fishing job.

The Sinclair Oil & Gas Co.'s No. 26 Hartley, SW cor. NW NW, Section 18-22-3w, Garber Field, Garfield County, which was drilled with cable tools from the gas sand downward, found a sand at 2,723-35 feet which yielded 4,600 bbls. of oil and 5,000 bbls. of water the first day, 5,600 bbls. of oil the second day, 7,100 bbls. the third day and 6,042 bbls. the fourth day, the quantity of water coming up remaining at about 5,000 bbls. each day. It produced over 23,300 bbls. of oil and about 20,000 bbls. of water in four days. It is the only well in the field that found this sand, the others having been drilled with rotary tools. If the sand underlies all the deep-sand area thus far explored the rotaries passed through it and no one discovered it.

The Interocean Oil Co. and Roland Oil Co.'s No. 1 Bigpond, SW cor. SE NE, Section 27-17-8, Creek County, was deepened 2 feet to a total depth of 3,146 feet, and increased its production from 800 bbls. to 1,225 bbls. The sand was topped at 3,142 feet and the well made 35 bbls. the first hour.

Important Tests

Tex Jones and the Carter Oil Co.'s No. 1 Forty-Four, SE cor. NW SE, Section 9-15-12, Okmulgee County, got sand at 2,661-69 feet and had 400 feet of oil in the hole.

The Olean Petroleum Co.'s No. 1 Farren, NE cor. Section 23-19-4, Ingalls district, Payne County, was making 30 bbls. an hour of 39 gravity oil from sand at 3,721-22½ feet.

The Deep Rock Oil Co.'s No. 1 Fenton, in Section 27-18-3, Payne County, was drilled to 4,328 feet and was producing 332 bbls. a day. Top of the sand was found at 4,325 feet.

The Magnolia Petroleum Co. has a 286-bbl. well in No. 1 Snyder, C NE NW SW, Section 34-1s-3w, Carter County, in sand at 3,000-08 feet.

The Wood Oil Co.'s No. 1 Craig, NE cor. SE, Section 30-14-10, Creek County, was deepened 5 feet to 2,914 feet and swabbed. It showed 42 bbls. production the first 24 hours. The last 5 feet was sandy lime.

The Texas Co.'s No. 1 Allenbaugh, SE cor. SW, Section 3-11-6, Lincoln County, got a sand at 4,697 to 4,702 feet and was back in sandy lime. It got a hole full of water at 4,725 feet and was shut down for orders.

BURBANK FIELD
Week Ending February 16

Lewis Oil Co.	15	933
Carter Oil Co.	281	6,598
Comar Oil Co.	7	95
Devonian Oil Co.	16	116
Mid-Continent Petroleum Corp.	106	1,252
Gypsy Oil Co.	193	2,600
Kewanee Oil & Gas Co.	25	201
Laurel Oil & Gas Co.	16	163
Lorraine Petroleum Co.	15	80
Midland Oil Co.	38	641
Mid-Kansas Oil & Gas Co.	41	1,945
Peters & Oliphant	3	640
Phillips Petroleum Co.	178	10,130
Phillips Petroleum Co. and Delmar Oil Co.	16	901
Phillips Petroleum Co. and Skelly Oil Co.	180	2,068
Prairie Oil & Gas Co.	128	3,879
Producers & Refiners	29	264
Ryan & Reno	1	14
Roxana Petroleum Co.	54	551
Seemans	1	7
Simons and Moore	29	201
Sinclair Oil & Gas Co.	144	1,482
Skelly Oil Co.	27	776
Tidal-Osage Oil Co.	42	484
The Texas Co.	16	392
Twin State Oil Co.	24	367
Total	1,635	26,420

Kay County Extension of Burbank

George Bole	3	228
Carter Oil Co.	11	783
Comar Oil Co.	19	1,045
Mid-Continent Petroleum Co.	16	855
Gypsy Oil Co.	18	240
Laurel Oil & Ref. Co.	5	136
Mid-Kansas Oil & Gas Co.	10	805
Phillips Petroleum Co.	32	2,250
Prairie Oil & Gas Co.	4	90
Pure Oil Co.	5	232
Roxana Petroleum Co.	8	268
Dye & Tomlinson	8	375
Skelly Oil Co. and Phillips Pet.	20	308
Sinclair Oil & Gas Co.	5	192
The Texas Co.	16	209
Twin State Oil Co.	15	792
Total	193	8,809
Total Burbank	1,818	45,229

Following was the average daily production in several important pools for the week ending as indicated:

TONKAWA
Week Ending February 13

Amerada Petroleum Co.	38	1,822
Blackwell Oil & Gas	31	827
Carter Oil Co.	4	92
Champlin Refining Co.	2	20
Comar Oil Co.	366	16,975
Mid-Continent Oil Co. and Marland Oil Co.	21	2,188
Gypsy Oil Co.	110	4,849
Healdton Oil & Gas Co.	26	429
Wentz Oil Corp.	55	10,071
McMan Oil Corp.	2	55
Pennok Oil Co.	32	814
Phillips Petroleum Co.	3	48
Prairie Oil & Gas Co.	12	335
Sinclair Oil & Gas Co.	1	7
T. B. Slick and Comar Oil	38	1,974
Southwestern Petroleum Co.	15	346
The Texas Co.	12	2,105
White Eagle Oil & Ref. Co.	7	117
Total	775	43,074

Tonkawa Deep Sand

Amerada Petroleum Co.	8	1,221
Pennok Oil Co.	7	305
Comar Oil Co.	57	11,225
Gypsy Oil Co.	17	2,510
T. B. Slick	7	1,012
McMann Oil Co.	1	9
Blackwell Oil & Gas Co.	4	297
Wentz Oil Corp.	16	9,674
The Texas Co.	11	1,529
Phillips Petroleum Co.	1	20
Mid-Continent and Marland Oil Co.	5	2,082
Total	134	29,884

DAVENPORT POOL
Week Ending February 15

Company—	Wells	Av. Dy. Prod.
Magnolia Petroleum Co.	45	5,928
Gypsy Oil Co.	11	2,263
Phillips Petroleum Co.	2	431
Pure Oil Co.	5	215
Selby Oil Co. and Southwestern Petroleum Co.	12	1,922
Carter Oil Co.	4	243
Skelly Oil Co.	5	1,300
The Texas Co.	14	6,200
Twin State Oil Co.	8	610
Sinclair Oil & Gas Co.	1	50
Amerada Petroleum Corp.	6	1,243
Shaffer Oil & Refining Co.	1	42
Total	130	22,569

CROMWELL
Week Ending February 17

Company—	Wells	Prod.
Amerada Petroleum Co.	7	352
Berry Petroleum Co.	1	33
Burke-Gries	4	346
Carter Oil Co.	50	2,464
Carter Oil and Gardner Petroleum Co.	5	21
Central National Petroleum Co.	8	385
Continental Oil Co.	11	1,430
Mid-Continent Pet. Corp.	32	541
Empire Gas & Fuel Co.	3	152
Gilliland Oil Co.	4	122
Gypsy Oil Co.	53	2,949
Gypsy Oil and Laurel Co.	11	395
Hoffer et al	3	197
Devonian Oil Co.	1	145

AMARILLO AREA IN PANHANDLE SCENE OF MUCH FIELD ACTIVITY

By Special Correspondent

AMARILLO, Tex., Feb. 20.—This lively and rapidly growing city in the Texas Panhandle is the center of the most promising new oil development in the country. Recent good wells in Hutchinson County, northeast of Amarillo, have increased the confidence so long felt by many Texas and Oklahoma operators that the Panhandle would be the next great oil producing region in the Lone Star State.

From the Kansas line down through the Oklahoma Panhandle and even to territory south of this city the leasing of land for oil and gas purposes, which has been going on for years, but in a minor degree, has developed into a business in which large sums of money are changing hands. It has become pretty well settled in the minds of oil men that the Amarillo Field is a real oil country, only needing adequate pipe line outlet for the crude, and the outlet is only a matter of time, and perhaps a short time. On a straight line Amarillo is about 250 miles from Wichita Falls, but from the producing fields to Enid, Okla., is about 160 miles straight away with a natural downward slope of about 2,400 feet between the fields and a point where connections could be made with main trunk lines in Oklahoma.

Some Geological Features

Without attempting to give a geological report on the Amarillo Field, several interesting features might be mentioned. It is well known that a subsurface granite ridge runs in a general northwesterly direction from Oklahoma, following approximately the axis of the structure. The belief up to this time is that little oil will be found south of this ridge, a belief that is not founded on anything substantial enough to make it a surety. One well in Potter County, drilled by the Prairie Oil & Gas Co. was an exception, but has been regarded as a freak. It has been the assumption that the ridge acts as a dyke and that it confines most of the production to the north side of the structure. The Big Lime is used as a marker in the field. At the top of the structure the Big Lime is found as shallow as 1,600 feet. The depth of the top of the lime and its thickness varies with its location on the structure, but its average thickness may be called 800 feet. The big gas production which already has made the Amarillo district known nationally is found in the Big Lime, but not in any particular horizon; it may be anywhere from the top to the bottom. A general nonconformity of shale, sandy lime and granite wash lies below the Big Lime. There is such a variation in these strata in different wells that no particular one of them can be said to be on the main oil bearing formation. Between the shale and sandy lime above it and the solid granite below is the granite wash. It varies in thickness in different parts of the field. The oil production is found in the sandy lime and in the granite wash at an average depth of about 2,900 feet. In a general way the granite wash may be said to produce oil higher up on the structure in Carson County while the sandy lime bears the oil farther down on the structure in Hutchinson County. In Carson County the granite wash carries oil and the sandy lime is dry or carries gas. In Hutchinson County the oil is found in the sandy lime.

Amarillo oil is of high gravity. It runs from 38 degrees to as high as 40.6

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Houston Oil Co.	4	442
Independent Oil & Gas Co.	3	20
Kingwood Oil & Sinclair Oil & Gas Co.	4	77
Laurel Oil & Gas Co.	2	54
McMan Oil Co.	11	480
Magnolia Petroleum Co. and McMan Oil & Gas	6	462
Mid-Kansas Oil & Gas Co.	4	135
Magnolia Petroleum Co.	4	130
Prairie Oil & Gas Co.	14	782
Pure Oil Co.	14	210
Roxana Petroleum Co.	23	846
Shaffer Oil & Gas Co.	8	433
Sinclair Oil & Gas Co.	23	1,427
Sinclair Oil & Gas Co. and Gardner Petroleum Co.	8	334
Snowden & McSweeney	4	386
Sinclair Oil & Gas Co. and Houston Oil	5	334
Southwestern Petroleum Co.	19	1,194
Sinclair Oil Co. and Transcontinental	8	409
Superior Oil Co.	6	110
Tidal-Carter	2	145
Tidal-Osage Oil Co.	11	642
H. F. Wilcox Oil & Gas	7	142
Waite Phillips Petroleum Co. et al	18	748
White Eagle Oil & Ref.	2	25
Nowata Oil & Ref. Co.	3	187
Phillips Petroleum Co.	1	36
Total	406	19,622

Osage Completions

Seamans and others' No. 1, NW cor. NE NE SW, Section 17-26-6, Osage County, got sand at 2,936-70 feet, which was shot with 70 quarts. It made 75 bbls. on the swab the first day, but was not a completion. The Continental Oil Co.'s No. 3, C NE SE SE, Section 29-24-8, made 616 bbls. naturally from sand at 2,595 feet, drilled in 6 feet. It was not a completion. The Sand Springs Home's No. 1-A, SE cor. SW SE SE, Section 2-22-12, was shut in, a 1,000,000-foot gas well, from sand at 1,540-44 feet. J. H. Middleton's No. 2, SW cor. NE NE, Section 26-22-13, Tulsa County, is a 500,000-foot gasser at 1,370-80 feet. Indian Territory Illuminating Oil Co.'s No. 17, NE cor. SW NW, Section 14-29-10, sand at 941-60 feet, 8 bbls. was drilled to 1,833 feet, and plugged back. Edgewood Oil Co.'s No. 4, NE cor. SE NE, Section 15-29-10, sand at 1,053-81 feet, shot with 80 quarts, 90 bbls.; same company's No. 5, SW cor. SE NE, Section 15-29-10, sand at 1,006-39 feet, shot with 90 quarts, 100 bbls.; same company is drilling No. 6, SE cor. NW SE NE, Section 15-29-10, at 400 feet. Indian Territory Illuminating Oil Co.'s No. 2, NE cor. SE NE SE, Section 15-29-10, sand at 1,118-31 feet, shot with 60 quarts, 5 bbls.; same company rigging up machine for No. 14, NW cor. NE NW SE, Section 15-29-10. Wiser Oil Co. is drilling at 400 feet in No. 15, SE cor. SW NE NW, Section 27-29-11.

The Phillips Petroleum Co.'s No. 5, SW cor. NW SW SE, Section 2-27-5, got sand at 2,958-3,029 feet, shot it with 140 quarts and it made 175 bbls. the following 24 hours; same company's No. 11, C SW NE SE, Section 2-27-5, sand at 2,911-68 feet, shot with 140 quarts, 317 bbls. It was good for 100 bbls. naturally. The Interstate Oil & Gas Co.'s No. 48, NE cor. SW SE, Section 16-26-12, got sand at 2-187-2,323 feet, it made a 10-bbl. showing after the shot, and was being cleaned out. Tidal Osage Oil Co.'s No. 14, C NE NE NW, Section 25-24-8, got sand at 2,130-65 feet, shot it with 90 quarts, and the well flowed 15 bbls. the first 25 hours. The Continental Oil Co.'s No. 6, C NE SE SE, Section 29-24-8, which started at 616 bbls. from Wilcox sand at 2,595-2,601 feet, dropped to 480 bbls. The Winona Oil Co.'s No. 18-A CWL E half, W half SE, Section 28-24-10, got sand at 1,376-97 feet, 10 bbls. the first 24 hours after the shot. Indian Territory Illuminating Oil Co.'s No. 338, NW cor. SE SE, Section 27-25-11, started at 700 bbls. the first 36 hours from sand at 1,175-1,238 feet, pumping through 3-inch tubing. It made 470 bbls. the next 20 hours, or an average of nearly 15 bbls. an hour for 56 hours. The Barnsdall Oil Co.'s No. 5, SW cor. NW SW NW, Section 11-24-11, made 25 bbls. the first day following a shot in sand at 1,648-1,720 feet. Barnsdall Oil Co.'s No. 9, SW cor. NE SW SW, Section 18-21-9, shot with 120 quarts in sand at 2,220-75 feet, 26 bbls.; Oklahoma Natural Gas Co.'s No. 708, SW cor. NW NE, Section 11-21-10, sand at 1,547-52 feet, 3,500,000-foot gas production; Devonian Oil Co. and Tidal Oil Co.'s No. 1 CSL north half SW, Section 27-21-10, sand at 1,866-1,900 feet, shot with 60 quarts, 20 bbls.; Barnsdall Oil Co.'s No. 13, SW cor. SE SW SW, Section 4-20-12, sand at 1,980-90 feet, 50 bbls.; Continental Oil Co.'s No. 3, C NW NW SW, Section 28-20-12, dry and abandoned at 2,084 feet; Westland Oil Co.'s No. 2, C NE NE SE, Section 29-20-12, sand at 1,971-2,041 feet, shot with 60 quarts, 30 bbls.

New operations started in Osage County include the following: Tidal-Osage Oil Co.'s No. 17, C NW NW NE, Section 17-29-6, spudded in; Barnsdall Oil Co.'s No. 2, CEL SE, Section 15-27-10, cleaning out at 1,362 feet; Lewis Oil Co.'s No. 7, C SW NE NW, Section 29-25-8, drilling at 300 feet; Texas Co.'s No. 6, NW cor. NE NW SE, Section 29-25-8, rigged up; same company's No. 1, NE cor. NW NW NE, Section 13-24-8, spudded in; McCune and others' No. 5, SE cor. NE SW NW, Section 15-24-8, drilling at 600 feet; Tidal-Osage Oil Co.'s No. 3, SW cor. Section 24-24-8, drilling at 650 feet; Ernest McCarthy's SE cor. NE, Section 29-24-8, rig; Continental Oil Co.'s No. 4, C SE NE SE, Section 29-24-8, rig; Devonian Oil Co.'s No. 13, NE cor. NW NE NW, Section 34-25-11, spudded in; Teslos and the Roxana Petroleum Corp.'s No. 3, SW cor. SE SW SE, Section 1-24-11, shut down at 290 feet; Mid-Continent Petroleum Corp.'s No. 1, C NW NE SW, Section 16-23-10, rigged up; Ross & Wetherall's No. 12, NE cor. NW SE SW, Section 25-23-10, rigged up; Amerada Petroleum Corp.'s No. 18, SE cor. NW SE, Section 16-22-9, drilling below 300 feet; Winemiller and others' No. 1, NW cor. NE NE SW, Section 20-22-10, drilling below 300 feet; Mitchell and others' No. 1, SW cor. NW SW NW, Section 7-21-9, rigged up; Tidal-Osage Oil Co.'s No. 4, CWL SW, Section 11-21-10, drilling at 600 feet; Knupp & Bosco's No. 6, CSL north half NE, Section 18-21-10, rigged up; Barnsdall Oil Co.'s No. 20, SE cor. SW NW NE, Section 30-21-12, rig up; Winona Oil Co.'s No. 4, SE cor. NW SE NE, Section 29-20-12, rig.

Gasser in Sequoyah

In Sequoyah County, the Eureka Oil Co.'s wildcat, C SW NW, Section 33-11-25, which was drilled to 4,200 feet, plugged back to a gas sand at 3,131-3,227 feet, where there is a 5,000,000-foot gas production.

Payne County Operations

In Payne County, the Mulberry Oil Co. has a 15,000,000-foot gas well in No. 2 Parmlee, C SE SE SE, Section 31-18-4, in the Cushing district; Blauner & Hartley's No. 1-A Lorett, NW cor. Section 2-18-6, is a 2,000,000-foot gasser at 3,248-53 feet. It is not complete.

Harper County Tests

Harper County, in northeastern Oklahoma, has two new operations in B. V. Willitt's No. 1 Meade, NW cor. SW SE, Section 30-29-22w, a rig and the Hoffer Oil Co.'s No. 1 Byron, NW cor. SE, Section 14-25-22w, last reported drilling at 425 feet.

Deep Failure in Noble County

The Magnolia Petroleum Co.'s No. 1 Austin, C SW SW SE, Section 14-21-2w, Noble County, which was dry and abandoned at 4,527 feet, got a small showing of oil at 2,980 feet; a hole full of water at 3,497-3,500 feet; a show of oil at 3,500 feet, and hole full of water at 3,755-3,800 feet. The Magnolia Petroleum Co. and the Bu-Vi-Bar Oil Co.'s No. 2 Moore, C NW SW SW, Section 15-21-2w, is drilling below 700 feet. Hawley Haggerting has a rig on the ground for No. 1 Martin, NE cor. SW, Section 13-13-1w, Oklahoma County.

Lincoln County Activities

The Flynn & Morgan test on the Susan Coffey farm, NE cor. SW SW, Section 25-15-5, Lincoln County, which has been plugged as a failure, had sand at 2,560-68 feet, with a showing of gas; sand at 2,610-25 feet and 2,500,000 feet of gas; got the top of the brown lime at 3,397 feet, had a sand at 3,397-3,412 feet, with 2,500,000 feet of gas; broken sand at 3,476-3,506 feet, which was dry; lime at 4,315-17 feet; a hole full of water at 4,317-21 feet; total depth 4,322 feet. The Amerada Petroleum Co. abandoned the location for a test, SW cor. SE SE, Section 26-15-6. The Independent Oil & Gas Co. has a rig up for No. 2, NW cor. SW SW, Section 5-15-6; The Texas Co., a rig up for No. 1-A Baker, NW cor. SE SE, Section 2-14-5, and the Amerada Petroleum Co. a rig up for No. 4 Hopkins, SE cor. NE SE, Section 2-14-5. Recent completions in the Davenport Pool include the Carter Oil Co.'s No. 4 Tuttle, SE cor. NW NE, Section 2-14-5, sand at 3,287-3,404 feet, 10,000,000 feet of gas and 82 bbls. initial production; Magnolia Petroleum Co.'s No. 12 Sukovaty, SE cor. NE, Section 2-14-5, sand at 3,299-3,389 feet, 120 bbls. No. 13, NE cor. NW SW, Section 2, sand at 3,292-3,387 feet, 200 bbls. No. 15, NW cor. NE SW, Section 2, sand at 3,279-3,375 feet, 325 bbls. Skelly Oil Co.'s No. 5, SW cor. SE NE, Section 2-14-5, sand at 3,260-68 feet, 350 bbls. The Texas Co.'s No. 4 Hopkins, NW cor. SW SE, Section 2-14-5, which did 45 bbls. an hour naturally, from sand at 3,309-70 feet, shot with 80 quarts, 1,150 bbls. first 24 hours; same company's No. 6, SE cor. NW SE, Section 2-14-5, sand at 3,302-81 feet, 30 bbls. an hour naturally; shot with 80 quarts, flowed 625 bbls. in 24 hours. Prairie Oil & Gas Co.'s No. 16 Stout, SW cor. NW NW, Section 3-14-5, sand at 3,418-58 feet, 225 bbls. naturally.

The Texas Co.'s No. 5 Hopkins, SW cor. SE, Section 2-14-5, was drilling below 1,000 feet; Amerada Petroleum Co.'s No. 7 Belless, C SW NE SW, Section 3-14-5, drilling below 2,100 feet; Magnolia Petroleum Co.'s No. 2 Belless, NW cor. SE SW, Section 3-14-5, drilling below 300 feet; No. 3 Belless, NE cor. SW SW, Section 3, drilling below 400 feet. Prairie Oil & Gas Co.'s No. 18 Stout, SW cor. NE NW, Section 3-14-5, drilling below 1,400 feet. Phillips Petroleum Co.'s No. 4 Darind, NE cor. SW NE, Section 10-14-5, a rig up. Magnolia Petroleum Co.'s No. 1, NE cor. SE. Section 10-14-5, drilling at 300 feet. Southwestern Petroleum Co. No. 1 Davis, SE cor. NE, Section 21-14-5, drilling below 300 feet.

Ingalls and Deep Rock Pools

In the Ingalls district, Payne County, new rigs are up for the Roxana Petroleum Corp.'s No. 2 Stover, C NW SW SW, Section 13-19-4; No. 3 Stover, C SE SW SW, Section 13. Olean Petroleum Co.'s No. 2 Bright, C NE SE SE, Section 14; same company's No. 2 Ellis, C SE NE NE, Section 23, and No. 3 Pleasants, C NE NW NW, Section 24. The Deep Rock Oil Co.'s No. 4 Boyles, SW cor. SE, Section 23-18-3, made 95 bbls. the first day from sand at 3,700-63 feet; same company's No. 1 Fulton, C SE NE, Section 25-18-3, produced 364 bbls. the first 24 hours from sand at 4,325-27 feet, not a completion.

The Pure Oil Co. has started drilling its No. 2 Ostrander, C SW SE NW, Section 23-18-3. The Mulberry Oil Co. has a 15,000,000-foot gasser in No. 2 Parmela, SE cor. Section 31-18-4, from sand at 3,612-47 feet.

Tulsa District Is Active

Johnson and others' No. 1, SE cor. SW SE, Section 4-19-14, Tulsa County, was dry at 1,920 feet and abandoned. Art Shaneless set 6-inch pipe at 1,580 feet in No. 1-A Hobbs, NW cor. SE NE, Section 17-18-13. The Pulaski Oil Co. is rigged up on No. 10 Stewart, C SW NW, Section 4-16-13.

West of Tulsa, in Creek County, the Devonian Oil Co. has tools in to drill No. 1 Miller, CEL SE NE, Section 14-19-8. The Gled Oil Co. has tools in for No. 2 Rose, SE cor. SW, Section 13-19-8. J. B. Grieves has started drilling No. 3 Grayson, C SE SW SE, Section 12-19-8. The Kingwood Oil Co. has a rig up for No. 1 Boyd, SE cor. NE NE, Section 30-19-9. Glidden and others have tools in for No. 1-A Island, CEL SE SW, Section 15-19-10. Madden & Mad-

(Continued on Page 135)

Kansas Oil Field News

By J. L. Dwyer

The most important well in Kansas at this writing is Port Fleeger and the Carter Oil Co.'s No. 1, C NE NE SE, Section 16-27-7w, in Kingman County, was on the verge of completion when this was written. The liner had been recovered from the hole, pipe was being run and this week ought to determine whether the well is as good as Fleeger has thought it would be or just an ordinary producer. Since the well hit the sand at 3,878 feet, with its showing of 130 bbls. of oil per day, Kingman County has been undergoing a great leasing campaign. Most of the big companies and some of the smaller ones and individuals have checkerboarded or leased one or more pieces in every direction from the well. Lease buyers have had to buy on hunches, so to speak, as there is very little geological data upon which they can work. Port Fleeger, an old and experienced oil man in the Central West, as well as the Kansas fields, has all along contended that this well would be a big producer, but there have been many doubting Thomases regarding the test.

Greenwood County had an unusual number of completed wells in the past week and a large number of new operations. Even old Butler County is being combed by ambitious operators and the far western country is experienced a reawakening.

Butler County Completions

Davis and others have a 50-bbl. well in No. 1 Scott, C SE NE SW, Section 24-23-8, Butler County; Empire Gas & Fuel Co.'s No. 84 Wilson, CNL S half NW, Section 28-25-5, sand at 644-67 feet, shot with 20 quarts, 20 bbls.; Ray and others' No. 1-A Plummer, C NE NW NW, Section 7-27-7, dry and abandoned at 2,788 feet; Amerada Petroleum Corp.'s No. 3 Dungey, C SW NW SE, Section 22-27-7, sand at 2,706-38 feet, swabbed 50 bbls., shot with 65 quarts, cleaning out, no estimate; Sinclair Oil & Gas Co.'s No. 2 Barnhill, C SW NE SE, Section 22-27-7, sand at 2,680-2,707 feet, shot with 20 quarts, swabbed 20 bbls., not complete; John Rodgers' No. 3 McLaughlin, NW cor. NE NE, Section 33-27-7, abandoned at 1,100 feet; John Rodgers' No. 8 Drumm, CWL SW NW, Section 29-26-8, sand at 2,656-2,739 feet, shot with 180 quarts, 50 bbls. of oil, 100 bbls. of water the following 24 hours; White Eagle Oil & Refining Co.'s No. 1 Travender, C SW SE NW, Section 25-28-5, dry and abandoned at 3,382 feet. Atlantic Oil Producing Co.'s No. 2 Sesenbaugh, C NE SE SW, Section 15-28-7, dry and abandoned at 3,244 feet.

New Work in Butler

The following is list of new operations most recently gathered in a round-up of Butler County fields: W. G. Sanford's No. 1 Salathiel, C NE NE NW, Section 12-26-6, spudded in; Flack and others' No. 3 Tobler, SW cor. NW SW SE, Section 22-27-7, drilling at 500 feet; Amerada Petroleum Co.'s No. 3 Truesdale, C SW SE NW, Section 27-27-7, drilling at 600 feet; same company's No. 5 Truesdale, SW cor. NW SE NW, Section 27-27-7, rig; Dixie Oil Co.'s No. 1 Truesdale, C NW NE SW, Section 27-27-7, spudded in; Empire Gas & Fuel Co.'s No. 2 Tobler, SW cor. NW NE, Section 27-27-7, spudded in; Phillips Petroleum Co.'s No. 2 Truesdale, C SE NE NW, Section 27-27-7, drilling at 800 feet; No. 3, C NW NE NW, Section 27, spudded in; same company's No. 4 Krause, C SW NE NW, Section 27, and No. 4 Truesdale, C SW NW SW, Section 27-27-7, No. 5 Truesdale, C NW SW SW, Section 27; No. 6 Truesdale, C SE SW SW, Section 27 and No. 7 Truesdale, C NE SW SW, Section 27, are all rigs on ground. The Phillips Petroleum Co. and White Eagle Refining Co.'s No. 1 Anderson, C SE SW SE, Section 28-27-7, rigged up; H. Garden's No. 1 Deichman, C NW NW NW, Section 23-29-6, spudded in; A. M. Landon's No. 1 Arnold, C NW NW SW,

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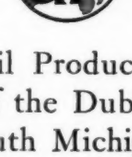
(3) The Gasoline Products Company and the M. W. Kellogg Company — for the promotion and sale of the so-called "Cross Process," alleging infringement of 12 of our patents under 55 claims thereof

(4) The Gulf Refining Company — for the use and operation of its cracking process, alleging infringement of 11 of our patents under 55 claims thereof

In addition to the foregoing, we instituted suit in September and October, 1925, against the following:

(5) The Skelly Oil Company — for the use and operation of the so-called "Jenkins Process," alleging infringement of 5 of our patents under 17 claims thereof

(6) The Empire Refineries Inc. — for the use and operation of the so-called "Brandt-Doherty Process," alleging infringement of 7 of our patents under 35 claims thereof



Universal Oil Products Company
Owners of the Dubbs Process
310 South Michigan Ave
Chicago Illinois

Gulf Coast Oil Operations

By P. L. McGreal

Atlantic Oil Producing Co.'s No. 1 Taylor, Boling Dome, stages gas blowout and is spraying 1,500 bbls. of oil. Estimated Boling will be producing 30,000 bbls. within 60 days. Humble Co.'s No. 20 Guedry, Hull Pool, flowing 1,900 bbls.; Gulf Production Co.'s No. 12 Hager, Orange Pool, 1,000 bbls.

HOUSTON, Tex., Feb. 22.—The Atlantic Oil Producing Co.'s No. 1 Taylor, off the northwest side of the new Boling Dome in Wharton County, staged a gas blow out early in the week. It blew out at 2,963 feet and is spraying 1,500 bbls. of oil, with 1,840 feet of the drill stem in the hole. Casing was set, but no screen could be placed. The oil shows 25 gravity, in contrast with The Texas Co.'s No. 3 Taylor, the discovery well, which is above 32 gravity. The wild gasser is some 600 feet northwest of the discovery well.

Nearby drilling rigs are shut down to prevent fire. The Atlantic Oil Producing Co.'s No. 1 Taylor, 400 feet northwest of the discovery well, drilled to 3,285 feet and plugged back to 3,000 feet for a test of a sand there. The Texas Co.'s No. 4 Taylor, 200 feet from No. 3, set and cemented casing at 3,199 feet and will drill in when the wild gasser subsides. The Sun Oil Co.'s No. 1 Taylor is around 3,000 feet. These three wells will be drilled in during the week. The Gulf Production Co.'s No. 1 Chase, southeast of the original well, is drilling around 2,200 feet in gumbo. A well on the Chase will prove up all of The Texas Co.'s 400-acre Taylor lease.

It is too early yet to make any predictions regarding the extent of the productive area around the Boling Dome. Ninety per cent of the wells now drilling are located northwest and west of the discovery well. It is believed, however, that the production there will average 30,000 bbls. per day within 60 days. The Texas Pipe Line Co. is working on its 8-inch pipe line extension westward from the West Columbia Pool and should have it in operation within 20 days.

The Roxana Petroleum Co. has indications of another dome near Hinkle's Ferry in the southern part of Brazoria County. Its No. 1 Kropp got a shallow oil sand at 537 feet. It is 6 miles north of the company's No. 1 Allen ranch, which drilled into cap rock at 822 feet. It was abandoned. No. 2 Allen is drilling around 1,700 feet, and No. 1 Clements Convict farm, on State land, is a deep test, drilling below 3,615 feet.

Daily Average Gross Output

The estimated daily average gross production for the week ending February 20 is placed at 99,390 bbls., a decrease of 2,376 bbls., compared with the week previous. A total of 31 producing areas are included in the gross figures. The South Louisiana pools are credited with 10,530 bbls.

The following table gives the estimate for each district:

District—	Gross Bbls.
Boling	4,200
Batson	1,650
Blue Ridge	1,009
Barber Hill	35
Big Creek	1,200
Dayton	60
Damon Mound	950
Edgerly (La.)	350
Humble	5,800
Goose Creek	9,750
Hull	19,600
High Island	730
Jennings (La.)	900
Lockport (La.)	2,600
Markham	75
Nash Dome	100
Orange	13,400
Orchard	400
Pierce Junction	1,600
Piedras Pintas	550
Spindletop	4,450
Saratoga	1,420
Sour Lake	5,190
South Liberty	7,400
Vinton (La.)	6,600
Welsh-Anse La Bute (La.)	80
West Columbia	9,150
Miscellaneous	150
Total	99,390

Southwest Field

The estimated daily average gross production in the Southwest Fields for the week is placed at 37,705 bbls., a decrease of 200 bbls. The estimate for each field is as follows:

Field—	Gross Bbls.
Luling	20,500
Laredo	3,490
Somerset	2,250
Callham	340
Rockdale-Minerva	975
Jim Hogg County	3,100
Lockhart	7,150
Total	37,705
Grand total for week	137,095
Grand total last week	139,671
Net decrease	2,576

Wells Completed

A total of 23 wells were completed during the week in the Coastal area, including the gas blowout in the Boling Pool. The dry holes number 5 and salt water wells 4, leaving 14 net producers. The new production aggregates 5,713 bbls. Six wells are bailing at the close of the week.

In the Hull Pool, the Humble Oil & Refining Co.'s No. 20 Guedry is flowing 1,900 bbls. pipe line oil at 3,000 feet. The Republic Production-Houston Oil Co.'s joint No. 99 Dolbear, a workover at 2,300 feet, started flowing, but soon sanded. The Yount-Lee Oil Co. abandoned No. 13 Merchant at 4,525 feet. The Houston Production Co.'s No. 10 Barngrover is pumping 125 bbls. at 3,200 feet and the Mecom Oil Co.'s No. 2 Taylor, a workover, will make a pumper at 1,725 feet. The Gulf Production Co.'s No. 11 Baldwin fee is bailing at 3,050 feet.

In the Orange Pool, Gulf Production Co.'s No. 12 Hager is flowing 1,000 bbls. at 4,650 feet. The Continental Oil Co.'s No. 7 Chesson will make a pumper at 3,075 feet. No. 10 Chesson sanded at 4,200 feet. No. 14 Chesson is bailing at 4,775 feet. The Brownie Babbittee Oil Co.'s No. 4 McLean is pumping 10 bbls. at 2,875 feet. The Gulf Coast Oil Co.'s No. 1 Leon will pump at 2,765 feet. The Peer Oil Co.'s No. 1 Mecom sanded at 3,430 feet. The Supreme Oil Co.'s No. 1 Jackson is a salt water hole at 4,650 feet. The Sun Oil Co. is bailing No. 1 Johnson at 5,710 feet. It is the deepest test in the pool at present.

In the Goose Creek Pool, the Humble Oil & Refining Co. abandoned No. 1 Smith at 5,000 feet. The Sun Oil Co.'s No. 15 Bartlett-Smith is pumping 100 bbls. at 2,575 feet. The Gulf Production Co.'s No. 12 Wright is bailing at 2,835 feet.

In the Batson Pool, S. R. Buchanan's No. 86 Milhome is making 20 bbls. at 1,325 feet and the Peer Oil Co.'s No. 1 Christian is pumping 40 bbls. at 3,225 feet. It is in the recent northwest extension in the deep sand section. The Ada Belle Oil Co.'s No. 107 Bailey is bailing at 800 feet.

In the Sour Lake Pool, T. G. Barclay's No. 1 Bradley is a faliure at 1,230 feet.

In the Saratoga Pool, Paggi Brothers' No. 1 Lewis bailed salt water at 1,500 feet.

In the Spindletop Pool, the Stella Oil Co.'s No. 19 Hogg-Swayne is a 10-bbl. well at 850 feet. The Wonder Oil Co.'s No. 3 Chassion is making 8 bbls. at 830 feet.

The Texas Co.'s No. 22 Arnold at West Columbia is a salt water well at 3,250 feet.

The Gulf Production Co.'s No. 1 West-Schenck at Blue Ridge bailed dry at 760 feet.

The Rio Bravo Oil Co.'s No. 2-P Settegast, on the west flank of the dome at Pierce Junction, is preparing to test a sand at 4,664 feet.

Louisiana Operations

In the Vinton (La.) Pool, the Edgerly Petroleum Co.'s No. 6 Vincent got salt water at 3,550 feet. The Texas Co.'s No. 1-A Gray is bailing at 3,450 feet.

The Pure Oil Co.'s No. 2 Sweet Lake in Cameron Parish is reported bailing 150 bbls. per day at 5,205 feet. No. 1 was a gas blowout and had to be abandoned. The location is 20 miles southeast of Lake Charles.

James W. Rich abandoned No. 1 Dennis, Wharton County, 12 miles west of Boling. It was a formation test drilled to 352 feet. More shallow holes will be drilled searching for formation and the Humphrey Corp. has plans for a deep test in that locality. The seismograph and torsional balance have both been used.

In the Lockport (La.) district, the Vacuum-Gulf joint No. 5 Miller will be drilled deeper from 4,400 feet. No. 6 Miller is at 3,775 feet. No. 1 Friedberg & Wolf are fishing at 4,650 feet and No. 2 set casing at 1,685 feet. No. 7 Miller is below 655 feet, No. 8 Miller around 1,700 feet and No. 9 Miller at 355 feet. No. 3 Farquhar is rigging.

The United Oil & Gas Syndicate's No. 1 Salt Mine, Jefferson Island, Iberia Parish, is drilling around 3,210 feet in sandy shale and showing considerable gas.

The Yount-Lee Oil Co. is rigging No. 5 School Lands at Hackberry Island, Cameron Parish, and also No. 10 Ervine-Bishop in Jefferson Davis Parish.

In Catahoula Parish, The Texas Co.'s No. 1 Hyman is below 3,045 feet.

In Calcasieu Parish, the Standard Oil Co. of Louisiana's No. 5 Industrial Lumber Co. lands, south of Stark, is drilling around 1,365 feet. It is 1,000 feet south of No. 4, which was abandoned in rock salt.

In St. Mary Parish, the Rio Bravo Oil Co.'s No. 1 Glenwild is at 3,395 feet.

The Rycade Petroleum Corp. has a location for No. 1 Atchafalaya, St. Martin Parish.

In St. Landry Parish, the Bristol Oil & Mineral Co.'s No. 1 Desirebreaix is at 2,215 feet.

Coastal Texas Wildcats

The Houston Oil Co. is preparing to test a gas sand on the O'Connor ranch in Victoria County around 2,617 feet. The drill went into the sand a few feet and 8¼-inch casing will be set. Same company's No. 1 O'Connor, near Mission Bay, Refugio County, is drilling around 1,800 feet.

In Harris County, The Texas Co.'s No. 6 Warren, at Hockley Dome, is around 1,455 feet, and No. 7 Warren is drilling about 985 feet. The Drain Oil Co. is rigging No. 1 Harrell at Cross Timbers. Armstrong and others' No. 1, near the San Jacinto battlefield, is around 2,600 feet.

In Jefferson County, the Gulf Production Co.'s No. 1 Burrell, off Fannette Dome, is around 1,110 feet. The Houston Oil Co.'s No. 4 Sun-Davis at Big Hill is at 3,244 feet, and No. 1 Sun-Dyson is around 2,966 feet. The Sun Oil Co. is rigging No. 2 Smith, Crawford and Moore, a formation test near Winnie.

In Liberty County, the Harrison Oil Co.'s No. 1 Schliner is around 2,855 feet on the southwest side of the old North Dayton Pool. T. C. Hackenberger is rigging No. 2 fee, Hardin survey.

Old and New Pools

"It's a darn poor oil company that hasn't got its own pool or saline dome these days," remarked an observer when it was reported that the Roxana Corp. had indications of another pool in Brazoria County. The developments of the past 60 days point to the truth of this statement. The Gulf Production Co. has

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GULF COAST HIGH GRAVITY WELLS GENERALLY REGARDED AS FREAKS

By P. L. McGreal

HOUSTON, Tex., Feb. 20.—The Texas Co. has officially graded crude from its No. 3 Taylor in the new Boling Pool in Wharton County, as "light gravity" and placed the oil from the Yount-Lee Oil Co.'s No. 2 McFadden, a new deep sand producer on the southeast side of the Spindletop Pool, in the same class. Both grade between 30 and 31 gravity and both will command $1.56 per barrel on credit balance quotations, the same as that gravity in North Central Texas. The Humble Oil & Refining Co. has listed its well on the east edge of the Piedras Pintas Pool in Duval County as "light gravity." It grades as 42 gravity and the oil brings $1.75, a special quotation.

The Gulf Production Co.'s No. 5 Moore at Orchard Dome in Fort Bend County, the new dome, grades 34 gravity, but no special price has been posted yet. The well is choked down to 700 bbls., flowing into storage. It is in the center of a lake or marsh which will be drained to facilitate further development work.

These special prices have been quoted in weekly reviews in The Oil and Gas Journal. Officials of buying agencies say the new prices have no special significance and apply only to such crudes as show high gasoline distillation tests. The crude from the three wells mentioned showed distillation tests of from 36 to 50 per cent gasoline content, which is unusually high for the Coastal region. The Boling Dome well showed 36 per cent gasoline, 50 per cent gas oil, 10 per cent fuel oil and 4 per cent bottoms. The Piedras well tests 50 per cent gasoline, and then ran off to fuel oil.

These crudes are stored in separate tanks and will be handled separately in transportation from the wells to the refineries.

Light Oil Not Unknown

Light gravity crudes are not unknown in the Coastal region. Blaffer and Farish had a light gravity well in the deep sand section of the Humble Pool that flowed and pumped for several years. It was high in gasoline content and the owners erected a 200-bbl. skimming plant in the field, took off the gasoline and sold it to filling stations. W. S. Farish is now the president of the Humble Oil & Refining Co. and R. L. Blaffer is one of the vice presidents and its treasurer. As a rule, however, these high gravity wells run to a heavy gas oil cut, with little or no lub content and a decreased fuel oil. They are considered "flashy" and oil men are skeptical about them. Light gravity crude in the Coastal region is

(Continued on Page 112)

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TULSA, OKLA.
PITTSBURGH, PA.

North Louisiana-Arkansas

By M. L. Vaughn

Well 2 miles southeast of previous production in Pine Island district good for 300 bbls. and probably will result in considerable development in that territory. Urania continues active with 50 tests now drilling and production showing a steady increase. Shallow depth attracts operators.

SHREVEPORT, La., Feb. 22.—An increase of 1,210 bbls. daily in North Louisiana production for which Urania was largely responsible, was partially offset by a decrease of 175 bbls. in Arkansas, resulting in an average increase of 1,035 bbls. a day in the entire field. Smackover heavy showed a slight increase, while Smackover light, El Dorado, Nevada and Stephens production all showed a slight decline. Total production in North Louisiana and Arkansas averaged 214,580 bbls. a day, distributed as follows:

North Louisiana	
Bellevue	2,375
Caddo, light	8,830
Caddo, heavy	2,260
Cotton Valley	8,100
DeSoto and Red River	3,950
Elm Grove	620
Haynesville	10,340
Homer	5,870
Urania	2,275
	44,620
Arkansas	
Smackover, heavy	140,415
Smackover, light	18,850
El Dorado	7,560
Nevada	1,625
Stephens	1,510
	169,960
Total both fields	214,580
Increase, bbls.	1,035

Good Completion

Featuring the week's development in North Louisiana was the completion of a 300-bbl. well on the Youree-Randolph lease in Section 13-20-15, 2 miles east and south of previous production in the Pine Island district, Caddo Parish.

The well was drilled by D. C. Richardson and was first bailed in December 10, when it made about 1,000,000 feet of gas with a small showing of oil at 2,258 feet, and was shut in after blowing for one hour. Tankage was erected December 17, and the well was opened up and started off flowing at the rate of 300 bbls. a day, clean oil testing 27 gravity. After flowing a few hours, it sanded up and was again closed in and is now awaiting sand pump.

Completion of the Richardson well will undoubtedly result in a rush of development in this district, although at least 3,000 acres immediately surrounding the well has been leased by the Richardson interests. Steadily increasing activity in the old Caddo Parish Fields has been noted throughout the past year and so important an extension of producing territory will add materially to the interest in Caddo Parish development. Last week the Gulf Refining Co. alone moved eight rigs into the Pine Island and Ferry Lake districts, and drilling is now in progress in nearly every district in the old Caddo Field.

Urania continues in the limelight with a continued succession of wells being brought in and a rapidly mounting production. The Urania Field is proving a bonanza for operators of small means as the shallow wells make drilling comparatively inexpensive and there was plenty of loose acreage to be acquired in both large and small tracts when the field was discovered. Drilling wells have increased from 30 to 50 during the past week, and the daily production is now estimated at 2,275 bbls. Evidently development of the Urania district is not to be confined to the masculine element either as it is reported that a group of women in Georgetown, La., about 8 miles south of Urania, have purchased a lease and are organizing a company for drilling purposes in which none but women will be eligible.

Another wildcat is reported in Winn Parish, which will be drilled by the Chickasaw Oil Co. in Section 10-11e, 6 miles northwest of Urania production.

McGrew Elected President

F. Ray McGrew of Shreveport, was elected president of the Standard Pipe Line Co. at a meeting of the board of directors held in Baton Rouge last week, succeeding A. Clarke Bedford of New York, who recently resigned. Mr. McGrew entered the oil industry in West Virginia in 1897, and was in the Gulf Coast Fields through the Spindletop excitement and the early development of Sour Lake, Saratoga, Batson and Humble Fields, coming to Shreveport in 1907, in charge of the Standard Oil Co.'s pipe lines in the Caddo Field. Since then he has been assistant superintendent and superintendent of the pipe line department of the Standard Oil Co. of Louisiana, and was made vice president and general manager of the Standard Pipe Line Co., Inc., when it was organized in 1923.

Mr. McGrew is one of the best known and most popular men in the oil circles in this territory and his advancement to the presidency is a source of great pleasure to his many friends and business associates.

At a recent meeting of the directors of the United Carbon Co., a merger of nine carbon companies operating in the Monroe Gas Field, Oscar Nelson was appointed president of the company, C. E. Slagle and C. A. Barbour were elected vice presidents; G. A. Williams of West Virginia, secretary, and T. A. Whelan of West Virginia, treasurer. Mr. Nelson was a pioneer in the development of the Monroe Gas Field and was at one time general superintendent of the Southern Carbon Co. He was formerly of Charleston, W. Va., but has made Monroe his home for several years.

The Humble Oil & Refining Co. has purchased the holdings of W. W. Greeson and others in the Nevada County Field and will start active drilling operations at once in this territory. The holdings comprise in the neighborhood of 220 acres with several producing wells and are located in Township 14, Range 21 West, on the Waters and Ellis tracts and including a part of the Grove Land & Timber Co.'s land, and are said to involve a consideration of $65,000.

Mineral rights on 1,000 acres in Ouachita Parish were sold to Fred A. Green last week for $50,000, or $50 an acre. The sale was made by J. W. Standley and others and although there are no wells on the property, it is well located in the Monroe Gas Field as there are several good producers on adjoining property.

A suit has been called in the Caddo District Court which involves property in the Naborton district in DeSoto Parish valued at approximately $5,000,000. The suit was brought by a negro who claims that the land in question was granted to his father by the Government in 1891, and that he resided on it until July, 1916, when he was forcibly ejected.

It was during that year, that oil was discovered on this land, comprising 79 acres in Section 6-13-11, and it is claimed that oil has been produced and sold from it since that time which is valued at more than $3,000,000.

Union County Completions

The completion of eight producing wells in Union County added 1,455 bbls. to the output of the field, most of the new production being in the Norphlet district, with two wells in the Louann and one in the Lisbon districts.

In the Norphlet Field, Sam Cook completed No. 8 Tatum, Section 7-16-15, pumping 300 bbls. at 2,400 feet, 80 per cent salt water.

E. M. Jones completed No. 1 Murphy, Section 17-16-15, pumping 300 bbls. at 2,507 feet, 50 per cent salt water, and No. 8 Murphy in the same section, pumping 300 bbls. at 2,502 feet, 15 per cent salt water.

Lion Oil Refining Co.'s No. D-5 Murphy, Section 8-16-15, is pumping 250 bbls. at 2,454 feet, 80 per cent salt water.

O. G. Murphy completed No. 4 T. C. Murphy, Section 9-16-15, pumping 200 bbls. at 2,475 feet, 80 per cent salt water.

In the light oil district, south of Louann, the Bostick Drilling Co. completed No. 2 Hodges, Section 12-16-17, pumping 15 bbls. at 2,296 feet.

The Gulf Refining Co. completed No. 45 Werner, Section 6-16-16, pumping 30 bbls. at 2,258 feet.

In the Lisbon district, northwest of El Dorado, the Simms Oil Co. completed No. A-1 Dumas, Section 9-17-16, flowing 60 bbls. at 2,075 feet.

Ouchita County

In the Norphlet district, Ouachita County, the Imperial Oil & Gas Co. completed No. 9 McClannahan, Section 5-16-15, pumping 60 bbls. at 2,562 feet.

In the Stephens district, Ouachita County, Gossett and others tested salt water in No. 1 Thompson, Section 22-15-19, and the well was abandoned.

Urania Field

Four producing wells were completed in the Urania Field during the week, having an aggregate initial production of 1,000 bbls., with two tests going into salt water.

J. T. Cox and others completed No. 1 Tullos, Section 25-10-1e, flowing 150 bbls. at 1,541 feet.

Explorers Oil Corp. completed No. 1 Gaharan, Section 25-10-1e, flowing 200 bbls. at 1,540 feet.

Hamilton and others completed No. 1 Bennett, Section 25-10-1e, flowing 500 bbls. at 1,540 feet. The well is making good oil and is flowing through one joint of 50-mesh and one point of 40-mesh screen to keep out the sand.

W. H. Hawkins completed No. 1 Price, Section 25-10-1e, flowing 150 bbls. through 40-mesh screen, at 1,538 feet.

Natural Gas & Fuel Co. tested salt water in No. 7 Sarah Tullos, Section 25-10-1e, and the well was abandoned at 1,296 feet.

Ohio Oil Co. tested salt water in No. 2 Urania, Section 24-10-1e, and the well was abandoned at 1,589 feet.

Bossier Parish

In the Elm Grove district, in the south end of Bossier Parish, the Palmer Corp. completed No. 9 Caplis, Section 25-16-12, pumping 40 bbls. at 1,556 feet.

Caddo Parish

In the Hosston district, the Austin Oil

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., Feb. 20.—In the Turner Valley Field, southwest of Calgary, the Illinois-Alberta Oil & Refining Co., Section 12-20-3w5, is reported to have got another show of oil around 3,175 feet. Some weeks ago in a somewhat higher formation a similar showing was reported, which, it is claimed, started with indications of a flush production of 30 bbls. a day, but failed to hold up. The show was accordingly cased off and the test carried deeper. It seems probable the same thing will be done with the present showing, which, apparently, is not in commercial quantities. The well is being deepened from its previous depth of 3,038 feet to test the productive horizon in the Madison limestone.

Vulcan Oils, Ltd., No. 1, offsetting Royalite Oil Co.'s No. 4, is reported down 3,880 feet and underreaming. The drill is apparently working in the Fernie shales and should be close to the top of the Madison limestone, which in Royalite No. 4, was encountered around 3,450 feet. The divergent results in these two closely located wells indicate a very marked dip in the structure. For the last 100 feet or more the drill has been working in an open hole in a hard formation and it has now been decided to drop the 8¼-inch casing down to 4,000 feet if the limestone is not reached earlier. At 3,375 feet the test struck a light oil, about 55 degrees Baume, and considerable of this has been brought up by the bailer and tanked. Similar light oil showings have been met at five different horizons but the test will be continued to the Royalite sand.

In the same field Royalite Oil Co.'s No. 5 rotary test is reported at 2,745 feet and drilling. Royalite No. 6 rotary is down 2,668 feet and drilling. McLeod Oil Co. No. 2, Section 1-20-3w5, is reported drilling at 3,255 feet. Big Chief Oil Co.'s No. 1, Section 5-20-2w5, is down 1,700 feet and drilling.

West of Calgary

In the foothills, 25 miles west of Calgary, in the Jumping Pound district, Imperial Oil, Ltd., Bow River No. 1, Section 12-25-5w5, which spudded in the last of January, is reported down 255 feet and drilling. In the northern foothills, 150 miles west of Edmonton, Imperial Oil, Ltd., Coalspur No. 2, Section 3-49-21w5, is down 4,285 feet, still carrying the 8¼-inch casing and drilling.

In the Irma-Wainwright Field, east of Edmonton, Dave Credille is getting things in shape to resume drilling at the Irma Oil Development Co. test, Section 28-45-9w4, close to Irma. Machinery, boiler and slush pit have all been housed, and drilling will proceed as soon as the boiler is officially inspected. The well should be finished by the middle of April.

At an auction sale of cancelled oil leases held at the Dominion land office at Edmonton recently two forties, on Section 16-45-5w4 and Section 24-46-7w4, were sold at a $26 premium in addition to the rental fees. Most of the territory close in to the British Petroleums, Ltd., development in the Irma-Wainwright Field is tied up.

A test run of two carloads of crude from the British Petroleum, Ltd., wells in the Irma-Wainwright Field was made at the Alberta Refineries, Ltd., plant at Edmonton recently. According to refinery officials the heavy crude showed 27 per cent of 42 gravity distillate, the balance being a good quality of fuel oil. The test is not regarded as a perfect one as the crude had been some time in storage before shipment. The refining plant, with 1,500 bbls. daily capacity, is plan-

(Continued on Page 106)

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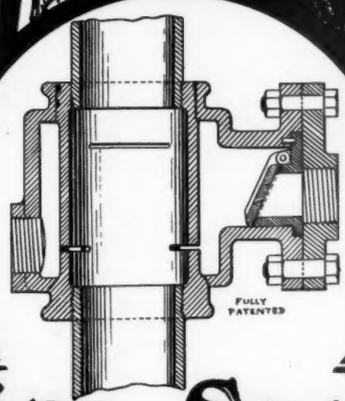

Simplex Fire Snuffer

Co. completed No. 27 Hoss, Section 23-22-15, pumping 25 bbls. at 1,050 feet.

In the Pine Island district, the Double I Oil Co. completed No. 6 Spell, Section 15-21-15, pumping 60 bbls. at 1,700 feet.

In the old Caddo Field, west of Lewis, Bratcher and others completed No. 1 Fields, Section 10-21-16, pumping 50 bbls. at 2,270 feet.

Catahoula Parish

Ferguson & Kimbrough have abandoned their test on the Nichols lease in Section 31-9-6e, at 2,219 feet.

De Soto Parish

In the Bull Bayou district, the Gulf Refining Co. completed Jankins No. A-33, Section 4-12-11, making 600,000 feet of gas at 806 feet.

Cotton Valley

In the Cotton Valley district, Fortuna Oil Co. tested salt water in No. 2 I. Cox, Section 23-21-10, and the well was abandoned at 2,690 feet. Ohio Oil Co. completed No. 2 Riggins-Cox, Section 15-21-10, pumping 100 bbls. at 2,543 feet, 80 per cent water.

Union County Drilling

Very little new work is being started in the Union County area of the Smackover and El Dorado Fields and at the close of the week there were 71 drilling wells, 10 rigs and 16 derricks, with one new location.

In the Lisbon district, northwest of El Dorado, the El Dorado Union Oil Co. is rigging up to drill No. 1 Ennis, Section 23-17-16; E. M. Jones is rigging up to drill No. 1 Andress, Section 16-17-16; Marine Oil Co. set 10-inch at 80 feet and drilling at 850 feet in No. 1 Slaughter, Section 9-17-16; Miles Trustee tested salt water at 2,560 feet in No. 1 Miller, Section 35-17-16, and waiting orders; J. D. Reynolds has 250 feet of fluid and is running sand pump at 2,150 feet in No. 2 Dumas, Section 15-17-16, and derrick up for No. 3, same section.

Rovenger Oil Corp. set 10-inch at 80 feet and is drilling at 450 feet in No. 4 Dumas, Section 9-17-16, at 1,000 feet in No. 1 Goodwin, Section 16-17-16, and at 1,250 feet in No. 1 Harrell, Section 15-17-16, with derricks up for No. 3 Dumas, Section 9-17-16, and No. 2 Goodwin, Section 16-17-16. Simms Oil Co. has derrick up for No. 2-A Dumas, Section 9-17-16. Wingfield and others are drilling at 2,060 feet in No. 1 Slaughter, Section 9-17-16, and have derrick up for No. 1 Cruse, Section 27-17-16.

As a result of the new production in the Lisbon territory, interest has been revived in the area between Lisbon and Louann and a number of wells have been started. Clark & Melat tested salt water with a show of oil at 2,010 feet in No. 1-A Saxon, Section 4-16-16, drilled deeper and are arranging to set 6-inch at 2,310 feet; Ferguson Drilling Co. is drilling No. 2 Howard, Section 7-16-16, at 2,250 feet; Gulf Refining Co.'s No. 2 Fagg, Section 7-16-16, at 2,810 feet, No. 1 McElroy, Section 4-16-16, at 2,635 feet, No. 2 McMullen, Section 1-16-16, at 2,350 feet, and No. 5 Primm, Section 1-16-16, tested salt water at 2,847 feet, and is temporarily abandoned.

A. L. Hunt is rigging up to drill No. 1 Swilley, Section 28-16-16; The Texas Co. is drilling No. 2 McClannahan, Section 12-16-16, at 1,950 feet, and Thurman and others have derrick up for No. 2 Houston, Section 2-16-16.

Between Lisbon and El Dorado

Several derricks are up for wells to be drilled between Lisbon and El Dorado, Arkansas Fuel Co. for No. 8 La Grone, Johnson Drilling Co. for No. 3 Anderson, and Magnolia Petroleum Co. set 8¼-inch at 2,235 feet in No. 1 Werner Co., all in Section 1-16-17.

In the Norphlet district, Amerada Petroleum Corp. tested salt water in No. 5 Calloway, Section 4-16-15, and is temporarily abandoned at 2,367 feet; Arkansas Fuel Co. tested salt water at 2,545 feet in No. 8 Ferguson, Section 6-16-15, and re-cemented casing at 2,542 feet; Broderick & Calvert are drilling No. 2-C Murphy, Section 8-16-15, at 2,530 feet; Sam Cook No. 7 Tatum, Section 7-16-15, at 2,475 feet; Crawford & Sebastian No. 10 James, Section 6-16-15, at 2,920 feet; Federal Petroleum Co., No. 7-B Lawton, Section 10-16-15, at 2,580 feet, and arranging to deepen No. 2-B Wells, Section 15-16-15, from 2,064 feet.

Hickman and others are drilling No. 4 Hays, Section 21-16-15, at 1,875 feet; Humble Oil & Refining Co. has 900 feet of oil in 3 feet of sand in No. 5 Giller, Section 15-16-15, and running tubing at 2,575 feet; Imperial Oil & Gas Producing Co. is drilling at 2,475 feet in No. 12 McClellan, Section 6-16-15, deepening from 2,387 feet; E. M. Jones is rigging up to drill No. 6 Murphy and drilling at 2,175 feet in No. 9, Section 17-16-15; Keen & Woolf are drilling No. 2 Bradford, Section 7-16-15, at 800 feet; W. R. Keever set 4½-inch at 2,670 feet in No. 3 Sanford, Section 17-16-15; Kennebrew and others are bailing water at 2,550 feet in No. 1 Williams, Section 3-16-15, and Laurel Oil & Gas Co. set 6-inch at 2,552 feet in No. 5 Tatum, Section 7-16-15.

Louisiana Oil Refining Corp. is coring at 2,470 feet in No. 4 Hodges, Section 7-16-15; Lion Oil & Refining Co. set 6-inch at 2,680 feet in No. 9-C Murphy, Section 8-16-15, and arranging to deepen No. 3 Wilson, Section 17-16-15, from 2,520 feet. Little Fay Oil Co. set 12½-inch casing at 330 feet in No. 3 Burns, Section 17-16-15; Magnolia Petroleum Co. is drilling No. 4 Hatfield, Section 7-16-15, at 1,340 feet; Marr & Woods, No. 3 Murphy, Section 17-16-15, at 2,425 feet; Mazda Oil Co., No. 4-H Lawton, Section 10-16-15, at 2,580 feet, and Murdock and others are setting 6-inch at 2,684 feet in No. 7 Vestal and have 1,100 feet of fluid in No. 8, 90 per cent salt water in 19 feet of sand at 2,689 feet and is arranging to set packer.

Other Operations

Natural Gas & Petroleum Co. set 6-inch at 2,630 feet in No. 4-A Harrell, and is whip stocking through casing at 2,245 feet in No. 5-A, total depth 2,679 feet, Section 17-16-15; Leo P. Puckrul is rigging up to drill No. 2 Smith, Section 17-16-15; Pure Oil Co. is drilling No. 8 Friend, Section 6-16-15, at 2,260 feet, and coring at 2,640 feet in No. 8 Merriwether, same section; A. H. Ramage trying to re-set packer to test 6 feet of sand at 2,482 feet in No. 3 Cook, Section 16-16-15; Sam Richardson sidetracking junk at 1,750 feet in No. 5 Lawton, Section 10-16-15, and Simms Oil Co. arranging to deepen No. 7 Cook, Section 16-16-15, from 2,468 feet.

Sinclair Oil Co. is rigging up to drill No. 8 Flannigan, Section 6-16-15; Sun Oil Co. setting liner to test 11 feet of broken sand at 2,557 feet in No. 7 Hatfield, Section 6-16-15; The Texas Co. arranging to pump No. 9 Alphin, Section 3-16-15; Thurman and others are drilling No. 1 Flenniken, Section 17-16-15, at 2,800 feet, and Unity Petroleum Co. milling out casing at 1,950 feet in No. 7 Roper, Section 3-16-15.

McGahan and others are down 2,140 feet in No. 1 Haney, Section 11-17-18, 6 miles west of Lisbon.

In the East El Dorado Field, Russell and others tested salt water and are arranging to abandon No. 1 Brown, Section 8-17-14.

Near Calion, and 6 miles east and north of Norphlet, Williams and others are rigging up to drill No. 2 Goodwin, Section 16-16-14.

In the South El Dorado Field, Richardson and others are drilling at 2,175 feet in No. 1 Meeks, Section 22-19-15.

Ouachita County

A slight increase in activity in Ouachita County brings the number of drilling wells to 35, with four rigs and six derricks and no new locations. Most of the development is in the heavy oil territory, with a few tests around Louann in the light oil district.

Calcord and others are rigging up to drill No. 5 Laney, Section 31-15-15; Gulf Refining Co. set 6-inch at 2,370 feet in No. 8 R. Bennett, Section 33-15-15; Houston Oil Co. set 4½-inch at 2,645 feet in No. 7 Hinton, Section 5-16-15; Humble Oil & Refining Co. is drilling No. 11-B Arnold, Section 26-15-16, at 1,350 feet, arranging to pump; No. 5 Laney, Section 32-15-15, standing with 2,000 feet of fluid in the hole at 2,384 feet, drilling No. 3 Laney, Section 31-15-15, at 1,595 feet, drilling No. 4 Laney, Section 32-15-15, at 2,565 feet.

Imperial Oil & Gas Producing Co. is drilling No. 7-A McClannahan, Section 6-16-15, at 1,250 feet; Interocean Oil Co. No. 2 Johnette, Section 33-15-16, at 2,260 feet; Magnolia Petroleum Co. bailing to test 27 feet of broken sand in No. 2 Shirey Fee, Section 30-15-16; Marine Oil Co. drilling No. 12 Snyder, Section 34-15-16, at 2,150 feet; Natural Gas & Petroleum Co., No. 5-A Hill, Section 5-16-15, at 2,260 feet; Ohio Oil Co. bailed dry and swabbing 9 feet of sand at 2,290 feet in No. 18 Cramer, Section 27-15-16.

Roxana Petroleum Corp. has gone back into No. 4-A Berg, Section 28-15-15, reported abandoned at 2,138 feet, and drilling deeper, pulling 4½-inch and will reset at 2,409 feet in No. 4-A Bennett, Section 32-15-15, and drilling No. 5 Snyder, Section 34-15-15, at 1,240 feet. Simms Oil Co. drilling No. 5 J. E. Murphy, Section 29-15-15, in gumbo at 1,890 feet; Sinclair Oil Co. rigging up to drill No. 9 Flannigan, Section 6-16-15, and Southern Crude Oil Purchasing Co. drilling No. 6 Joyce, Section 29-15-15, at 1,180 feet, and No. 4 Murphy, Section 4-16-15, at 875 feet.

The Texas Co. set 10-inch at 505 feet in No. 11 Johnson, Section 3-16-15, and drilling at 1,000 feet; Unity Petroleum Co. down 50 feet in No. 8 Umsted, Section 33-15-15.

In the Louann district, Magnolia Petroleum Co. got salt water in the deep test on the Bettie Clawson lease, Section 35-15-17, and is pulling casing to abandon at 2,995 feet. A. Meek set 6-inch at 2,256 feet in No. 2 La Grone, Section 36-15-17, and J. D. Reynolds tested No. 1 Smith, Section 13-15-17, getting 2,000 feet of fluid, 90 per cent salt water in 60 feet of broken sand, at 2,200 feet, and waiting orders.

H. M. Harrell is rigging up to drill No. 1 Moline Timber Co., Section 32-11-17, 10 miles north of Camden.

Stephens District, Ouachita County

Developments east of Stephens which was started by the completion of a 50-bbl. well by the Buffalo Oil Co., is not proving very satisfactory, but there are still a number of wells to be heard from.

J. E. Crosbie is drilling in salt water sand at 1,500 feet in No. 1 Wallace, Section 27-15-19; Equity Oil & Development Co. is in broken lime at 1,655 feet in No. 1 Morgan, Section 27-15-19; Gossett and others are in salt water sand at 1,672 feet in No. 1 Davis, Section 26-15-18, and building standard rig to pump, set 6-inch at 1,455 feet in No. 1 Gosden, Section 21-15-19, and set 10-inch at 42 feet in No. 2 Thompson, Section 22-15-19.

Louisiana Oil Refining Corp is rigging up to drill No. 1 Green, Section 22-15-19, and J. D. Reynolds is drilling at 1,000 feet in No. 1 Davis, Section 22-15-19.

Bossier Parish

Benton Syndicate set 10-inch casing at 1,085 feet in No. 1 Bulkley, Section 9-20-13, 3 miles north of Benton.

Simms Oil Co. will set 4-inch with packer at 1,184 feet in No. 1 C. D. Sandidge, Section 9-18-11, 2 miles north of Haughton.

Square Deal Oil Co. tested salt water with a small show of dead oil in 10 feet of sand at 1,227 feet in No. 1 Hale & Rumbough, Section 17-18-11, 1 mile northwest of Haughton.

Woodley & Collins set 12-inch at 102 feet in No. 1 Kilburn, Section 18-19-13, 5 miles south of Benton.

Bellevue Field

Autrey Oil Co. set 8-inch at 390 feet and is waiting for standard rig at 429 feet in No. 1 Snyder, Section 15-19-11.

Hanby Trustee is rigging up to drill No. 2 Larkin, Section 14-19-11.

Humble Oil & Refining Co. has shut down at 50 feet in No. 29 Bliss, and Wetherbee, Section 23-19-11.

Pine Island District

Dixie Oil Co. is waiting for standard rig at 1,809 feet in No. 7 Fitzsimmons Drilling Co., Section 14-21-15; arranging to set 6-inch casing at 3,557 feet in No. 2-B Noel, Section 13-21-15; set 15-inch at 263 feet in No. 71 Robertshaw, Section 14-21-15, and reaming at 1,500 feet in No. 72 Robertshaw, same section;

(Continued on Page 105)

New Mexico Field Operations

By Special Correspondent

ARTESIA, N. Mex., Feb. 20.—Rated as the most important development in the Artesia Field since the discovery well of Flynn, Welch & Yates was drilled in, is the finding of oil in a wildcat 45 miles east of the productive area. This well, the Maljamar Oil & Gas Corp.'s No. 1, located on the M. E. Baish permit in the NE cor. of Section 21-17-32, in Lea County, with the bit only 2 feet in the sand, filled 230 feet in fluid from a depth of 2,334 feet. It is located in the famous Mescalero sands, 3 miles west of the rim of the Cap Rock. The well has been shut down temporarily awaiting the arrival of William Mitchell, president of the company. The Maljamar No. 1 is the first wlidcat of the many drilled in both Lea and Chaves Counties to prove a producer and will open up a large amount of virgin territory.

In the proven area three completions were made during the week. The Levers-Wilson No. 2 in the NW of the SE of Section 18-18-28, was shot from 2,072-92 feet and is a fair producer.

The Frontier Petroleum Co. has one of the best producers in the north extension in No. 11 McQuigg Brothers, in the NW cor. of the NE of the SW, Section 4-18-28, shot with 170 quarts from 2,232-92 feet, it came in making 200 bbls. flush.

In Section 9-18-28, Flynn, Welch & Yates' No. 35, in the NW NW, Section 9-18-28, after being drilled to 3,300 feet, was plugged back and shot at 2,583 feet. When cleaned out it will make better than 50 bbls., considerable oil coming from an upper sand encountered from 2,309-38 feet, which was shot several weeks back. The Maljamar Oil & Gas Corp.'s No. 14, in Section 28-18-28, after being cleaned out proved good for 80 bbls. on the pump. This property to date has produced better than 200,000 bbls. of oil.

Another attempt is being made to obtain production west of the Pecos River. Robert Rehn and associates have moved a machine to a location 300 feet northwest of the old Brown well in Section 15-18-26. The Rehn well will be a 1,500-foot test. The drilling will be closely followed as it is on fee land, in a territory that has produced some oil for the past 18 years. Commercial production has never been obtained, due to artesian water which former drilling crews have been unsuccessful in shutting off.

New locations of interest made during the week are the Wade & Bujac No. 1 Goodale in the NW NW, Section 19-18-29; the A. H. Ramage No. 1 in the SE cor., Section 2-18-28; the Ohio Oil Co.'s No. 10 New State, Section 4-18-28; Flynn, Welch & Yates' No. 3 Keyes in the NW cor. SW NW, Section 21-18-28, which is spudding in.

Considerable wildcatting is to be done in Reeves and Jeff Davis Counties, Texas, south of the Artesia Field. In Reeves County the Humble Oil & Refining Co. has erected a derrick on the Klah farm in Section 57-32-1, the SW cor. SW. This company is also erecting a derrick in Jeff Davis County on the W. W. McCutchen farm. The Marland Oil Co. and the J. K. Hughes Oil Co. are also preparing to drill in the latter county.

North of the Artesia Field, in a territory that has attracted much attention, another test has failed to pick up the pay, the Southern Petroleum Exploration Co.'s No. 1 Lane, in Section 15-15-29. This hole is being plugged at 3,400 feet.

In the dry streak, which separates the main pool from the north extension, the Ohio Oil Co. has shut down its No. 1

(Continued on Page 106)

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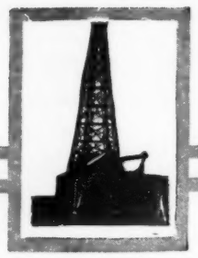


Southwest Texas Fields

By B. D. Stevenson

Interest centering around Cole gas field in Duval County. George M. Ball gets a producer extending the Bruni tract, Webb County. New wildcat tests planned in Medina County. Johnson & De Tray's big gasser in Carolina-Texas district now guessed at 100,000,000 feet.

SAN ANTONIO, Tex., Feb. 22.—Interest in south Texas still centers around the Cin-Tex Petroleum Co.'s well in Duval County in the Cole Petroleum Co. gas field and the most important feature is the closing of a deal by the Cole Petroleum Co. with the Houston Oil Co., the details of which have not been given out but which is understood to give the Houston Oil Co. the oil under the Cole Petroleum Co. leases. The Cin-Tex well is shut in and it is reported this is due to negotiations being on between the Cin-Tex and some major company for the sale of the 20 acres the well is on.

Everything immediately surrounding the 20 acres of the Cin-Tex is owned by the Cole Petroleum Co. and is included in its deal with the Houston Oil Co. Houston Oil Co. some months ago bought the gas under a considerable block of the Cole Petroleum Co. leases the contract providing that the Cole Petroleum Co. should drill six wells on the block. One of these was brought in Wednesday morning of last week, February 17, just one week after the Cin-Tex oil well came in and is a 40,000,000-foot gasser about 1 mile south and a little west of the Cin-Tex well. **The exact location is in the** north corner of Block 4 of Section 15, it being kept in mind that the survey lines in that territory are diagonal with the world. Killam & Secord have been drilling for a little over a week on their well in the east corner of Block 14 of Section 11 which is a little over a quarter of a mile from the Cin-Tex well. The Cin-Tex well first reported as located in the south corner of the northwest 20 acres of Block 16, Section 10. is really in the west corner of Block 16, Section 10.

One-half mile due north of Cin-Tex in the south corner of Block 6 of Section 10, Moody-Seagraves are rushing up a derrick and moving in tools to drill. It is the first location to be made since the bringing in of the Cin-Tex well. Killam & Secord just south of the Cin-Tex stand a chance of being the next well to reach the sand and drill in. The 40,000,000-foot gas well drilled in Wednesday for the Houston Oil Co. lines up with several other wells to the northeast of it, the line being about a quarter of a mile to the west of the Cin-Tex oil well. The Killam & Secord well which has been drilling for a little over a week and the Cin-Tex oil well and the test now rigging up by Moody-Seagraves north of the Cin-Tex well all line up together so that when the Killam & Secord and Moody-Seagraves wells come in they will throw a great deal of light on the situation.

Location of Dry Holes

In the first reports sent out last week the location of the dry holes in connection with the field were incorrectly given due to mistakes in the numbers of wells. The most important dry hole is one drilled by O. W. Killam in the east corner of Block 12 of Section 11, a diagonal offset to the well and about 400 feet west of the Cin-Tex well, the east corner of Block 12, Section 11, joining the west corner of Block 16 of Section 10. The well drilled to 2,985 feet which had a showing of gas at 1,750 feet is about a mile due west of the Cin-Tex well and is in the north corner of Block 8 of Section 11. Just south of this last dry hole is one of the Cole Petroleum Co.'s first gas wells which was sold to The Texas Co. and is now supplying the town of Hebronville with natural gas. The dry hole at 2,985 feet would probably make a gas well at 1,750 feet but was drilled with the idea of testing lower sands and failed to find them productive. The hole was only temporarily abandoned, being in fact shut down. One other well, the United States Gas & Oil Co.'s No. 1 on Block 10 of Section 11, was carried to 2,650 feet which is below the first gas sand and was later plugged back and made a small gas well at 1,688 feet.

Ship Pipe for Oil Lines

Magnolia Petroleum Co. has shipped a quantity of 4-inch pipe to Bruni to be available for a 10-mile line from the Cin-Tex well in the Cole Gas Field to the Magnolia's tank farm at Mirando City where they have seven 55,000-bbl steel tanks. The Cin-Tex oil well which came in recently opening a new pool is still shut in and will not be opened until this pipe is on the sidetrack ready to be laid. The well will then be opened and turned into steel storage on the lease through choker and gauged. If it makes the well it is expected to make the line will at once be laid from the well to the Magnolia's tank farm. The pipe is expected to be on the side track by the first of this week.

Aviators Field

In the Bruni tract, Webb county, a mile south of the nearest production in the Aviators (Edgington) Pool George M. Ball has completed a well in the northeast corner of the west half of Block 45 which considerably extends the field and with a dry hole between it and the nearest production. On Block 73 of the Edgington subdivision of the Puig ranch Ball recently brought in a well that gave the Mirando Field a new start to the south toward closing up the gap of more than 5 miles between the nearest production in the north and the original Mirando Valley discovery pool on the south in the north edge of Zapata County. Ball's wells on Block 73 of the Edgington subdivision and later wells on Block 74 to the east and still later the Keene well in the northwest corner of the northeast quarter of Block 14 of the Bruni tract, began to give the field a swing to the east, and gas wells to the west of these oil wells accentuated the eastward trend. Now the Ball well on 45 is a half mile to the west of these and a mile to the south, with a mile of virgin territory between with the exception of one dry hole.

Various interests own the acreage between, hence there will be considerable drilling to develop this intervening territory. About 3,000 feet to the west and a little to the south of Ball's new well is the Kirkpatrick gas well on survey 835, completed several months ago and with his No. 2 well started to the east of his gasser. This is repeating the experiences of the field with oil to the east of gas wells. The Henne, Winch & Fariss Pool in Jim Hogg County immediately to the east of the original Mirando Valley Pool was discovered by moving to the east of a gas well and the Cin-Tex new well in Duval county is a quarter of a mile to the east of a line of gas wells. This has happened so many times that it will not be overlooked in testing out every area to the east of gas areas.

Crown-Central Corp. has bought the 40 acres (the northeast quarter of Block 14 of the Bruni tract from R. Keene and others who drilled the first well in the northwest corner of the 40 and got a 400-bbl. well, flush production, that is still pumping over 150 bbls. daily. Two other wells have been completed, one to the east and one to the south and both are good wells, but Crown Central and Rydal Oil Corp. operating jointly on the lease to the west have drilled a dry hole offsetting Keene's first well to the west, their No. 3 Bruni. One location (300 feet) to the south of their No. 3 and offsetting the No. 2 of Keene they are drilling in their No. 5 which looks like a sure producer. Their No. 4, two locations to the west of their dry hole, is a producer and they are rigging up on No. 7 which is 300 feet south of their No. 5, spudding in. Dr. A. L. Edgington in the southwest corner of block 75 of the Puig Brothers ranch has a producer and in his No. 2 which is 300 feet east of his No. 1 he has a showing of oil at only 675 feet, the regular producing sand in that area being at 1,700 feet. This is the first time an oil showing has been had at 675 feet in that district. He is not stopping to make a test but it is thought by some it would make a commercial well. The sand will likely be tested in the next well drilled by him.

Simms Oil Co is starting a test in Block 52 of the Oscar Thompson tract out of the Las Animas grant in Jim Hogg County about 4 miles to the east of the Henne, Winch & Fariss Pool in Jim Hogg. Some of the production of the Henne, Winch & Fariss Pool is on the west end of the Thompson tract and owned by the Magnolia. The Simms well is a wildcat and is testing out entirely new territory. It is a little west of due south from the Cin-Tex oil well in the Cole Gas Field and about 8 miles south.

Simms Co. also has a test on survey 233 a mile or so south of the Pipin well on survey 291 which passed up a sand at 1,400 feet that looked like a small commercial well and now at 2,360 in a sand and setting casing for a test after taking a core that looks like it might make a well. E. L. Smith Oil Co. has an interest in the well and block of acreage. Simms Co. is drilling it.

Carolina-Texas District

Johnson & DeTray's No. 1 M. Vela in the northeast corner of survey 1012 in the Carolina-Texas Gas Field is a wreck, having cratered and the derrick fell into the hole with the rig. It came in January 26 as a 40,000,000-foot gasser at 2,710 feet, the sand producing in most of the wells in the field being at close to 2,000 feet. This well seems to have missed that sand and at 2,710 came in a big gas well and almost immediately sanded up and choked off. It was cleaned out and brought back February 15, but the combined strength of all the men on the crew was not sufficient to close the valve and the well soon after began throwing sand and rock and created a cavity so big that the casing with gate valve dropped out of sight S. W. Blount, Jr., supervisor for this district of the Oil and Gas Division of

(Continued on Page 114)

News of Mexican Fields

By George Blardone
Mexican Bureau, The Oil and Gas Journal

TAMPICO, Mex., Feb. 19.—With some 18 completions in Mexican fields during the past week four pay completions can be recorded with initial new production of 5,800 bbls. as a result. Fourteen holes were failures. The pay completions were all in the northern fields save one small well in the south country.

The best well was finished in Corcovado in a sector that has thus far been rather barren of results. Transcontinental Petroleum Co.'s No. 26, Lot 6, there came in rated for 3,000 bbls. at 2,299 feet. This is rather deep so just how the well will hold up under actual exploitation remains to be seen. Transcontinental's No. 56 Paciencia is rated good for 2,000 bbls. at 1,965 feet. East Coast Oil Co. has a 300-bbl. well in No. 52 Laguna de la Milpa, finished at 1,670 feet.

In the south fields, Cortez Oil Corp.'s No. 6, Lot 148 Amatlan, is good for say 500 bbls. at 2,120 feet.

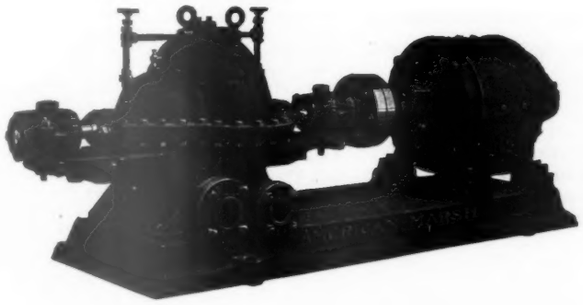
The Failures

The failures in the northern fields follow: La Corona Petroleum Co.'s No. 176 Lot 4 Cacalilao, drilled into salt water at 1,833 feet. East Coast Oil Co.'s No. 457 Ingenio, in the old Panuco Field, did the same at 1,935 feet. Mexican Sinclair Petroleum Corp.'s tests in the old Panuco Field also showed the following completions: No. 12 Tananturo, a dry hole at 1,917 feet; No. 18 Gutierrez at 2,222 feet, and No. 10 Gonzales came in a 10,000-bbl. fluid well, showing 85 per cent salt water at 1,875 feet. Mexican Gulf Oil Co.'s Nos. 5 and 6 Flores, both in the old Panuco, are dusters at 2,150 and 2,105 feet. In its Chapacao, Corcovado sector, its No. 26 is a dry hole at 2,400 feet. The Texas Co.'s No. 5 Isleta finished dry at 2,400 feet. Transcontinental Petroleum Co.'s No. 241, Lot 4 Cacalilao, drilled into salt water at 1,710 feet; and in the old Panuco Field its No. 9 Piedras is a dry hole at 2,150 feet. In the Corcovado, La Corona Petroleum Co.'s No. 20, Lot 6, finished in salt water at 2,450 feet. In the Marland Field, Cia. Pet. Franco Espanola's No. 26 Limon drilled into salt water at 2,555 feet, and No. 41 there is a duster at 2,200 feet.

At Panuco

Field operations in the Panuco Field as the week ended follow: La Corona Petroleum Co.'s No. 105 Piedras cemented 8-inch at 1,370 feet in gray lime; No. 112 is in shale and shells at 1,135 feet and No. 113 is ready to spud. Credito Petrolero's No. 1 Piedras cemented 8-inch in gray lime at 1,200 feet; No. 3 is in the same formation at 1,900 feet; No. 5-A cemented 8-inch in gray lime at 1,200 feet; No. 6 is in gray lime at 1,415 feet; No. 8 is rigging and No. 29, Lot 31 W. Maguabes is in shale at 220 feet. East Coast Oil Co.'s No. 53 Laguna de la Milpa is in gumbo at 160 feet; No. 228 Halcon cemented 8-inch in gray lime at 1,300 feet and No. 229 is in the same formation at 1,645 feet. Martin Head's No. 10 Piedras is in gray shale at 1,110 feet. Intermex Oil Co.'s No. 2 Tampuche is showing oil at 1,850 feet, in gray lime. Mexican Sinclair Petroleum Corp.'s No. 9, Lot 1 Camolote, cemented 10-inch in gray lime at 1,307 feet; No. 10 is in shale and shells at 1,520 feet and No. 11 is rigging; in Gutierrez No. 20 is running 8-inch in gray lime at 1,309 feet. Mexican Gulf Oil Co.'s No. 19 Lopez is in shale at 185 feet and No. 10 Zuniga is in gumbo at 475 feet. Cia. Pet. Maritima's No. 4-F Piedras (Federal zone), is in gray lime at 1,865 feet

(Continued on Page 112)



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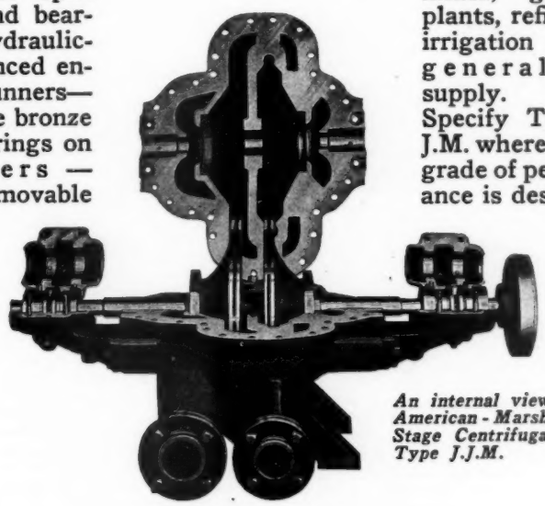

An internal view of the American-Marsh Two Stage Centrifugal Pump, Type J.J.M.

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California Field Operations

By L. P. Stockman

Rains impede operations. Eleven new producers in Long Beach extension, two or three making 1,000 bbls. Only five potential producers incompleted at Inglewood. Slow drilling at Torrance and Huntington Beach. Oil and gas showing at Edison. San Luis Obispo County wildcat has good-looking sand.

LOS ANGELES, Calif., Feb. 20.—Operators in California were afforded a little breathing spell during the past week, due to an almost continuous rain and, although new work was slowed up somewhat by the difficulty of hauling materials, this should be only temporary. The slowing up, which in several instances amounted to absolute suspension, was particularly conspicuous in Long Beach extension. New work in the San Joaquin Valley Fields and in several wildcat areas where only temporary roads had been constructed showed a similar condition. The storm resulted in the partial destruction of the Union Oil Co.'s loading wharf at Ventura, 1,300 feet of which was washed out by a heavy running sea. The Shell Oil Co. had been utilizing the Union's facilities at this point in loading its Ventura Avenue production into tankers for removal to its Martinez refinery near San Francisco but officials report temporary arrangements have been made to use the Associated's submerged pipe line and the Shell will not experience any unusual difficulties in moving its crude.

Tanker movements all along the coast were practically at a standstill for two days and smaller shipments of oil reflect this condition. The General Petroleum's pipe line, extending from Taft in the San Joaquin Valley to its Vernon refinery near Los Angeles, was broken when the Big Tujunga bridge in the San Fernando Valley was washed out. The gas line of the Midway Gas Co., which parallels the General Petroleum line, was also broken at the same time. Temporary repairs were made to permit use of both lines pending reconstruction of the bridge.

Week's Completions

There was no great change in the number of new wells completed, the weather having very little effect on this class of work as all the necessary casing and equipment had been laid down. At Long Beach there were 11 new producers finished, most of which were in the northwest extension and, while two or three came in at better than 1,000 bbls. daily, the average was considerably less. Three wells were completed at Inglewood and, while this field has yielded several new producers in the last month or so, this average will not be maintained as the number of wells drilling has shown a steady decline. A check shows not over five potential producers incompleted and, while this would seem to indicate no further work is contemplated for the present, this is not necessarily true. The Standard and Pacific are the only concerns to have any amount of undrilled acreage and future production depends upon the policy of these companies.

Drilling at Torrance and Huntington Beach is going along at a slow rate and, since these two fields reached the settled production stage, only a limited amount of new work is anticipated unless drilling restrictions in the latter are lifted, which might mean the spudding of some 15 or 20 new wells. There were no new developments in the several scheduled Obispo sand wells in the Maricopa flats section of the Midway-Sunset Field and the potentiality of this zone is still undetermined.

It is reported some excellent showings of oil and gas were encountered in a shallow water well being put down near Edison, a small town about 5 miles east of Bakersfield, but this has not yet been confirmed. The Barneyberg Oil Co. reports a good looking oil sand in its San Luis Obispo County wildcat at 3,525 feet and a string of 8¼-inch has been landed at 3,344 feet preliminary to an early test. This wildcat should not cause any undue anxiety because most of the acreage is held in large blocks and will be drilled up conservatively.

Long Beach

Drilling activity in the northwest extension of the Long Beach Field continued to hold the attention of operators and this area will undoubtedly show more intensive work than any other single field for the next month or two at least. There were 11 new wells finished whose total initial daily production aggregated 4,715 bbls. Work was hadicapped by climatic conditions and it is expected the number of new wells finished during the next two weeks will be somewhat larger.

Keck & McWhorter carried off completion honors with a 1,250-bbl. producer, although the Lindauer Oil Co. followed closely with a 1,240-bbl. producer. Keck & McWhorter's successful completion was No. 4 Cerritos, carried down to 4,385 feet and finished with a 6¼-inch liner, 100 feet shop perforated. The output, flowing through a ⅞-inch bean under a pressure of 518 pounds, tests 22.7 degrees and shows a cut of slightly less than 1 per cent.

The Lindauer's new well, No. 3 Cerritos, was carried down to 4,454 feet and finished with a 4¾-inch liner and 3,750 feet of 2½-inch tubing. The oil, flowing through a 1-inch bean under a pressure of 495 pounds, tests 21.3 degrees and shows a cut of 5 per cent. No. 9 Cerritos of the Painted Hills Oil Co., was good for 560 bbls. of clean 21.8 gravity oil from 4,450 feet and, although this well completes the present program of the company, it is likely another project will be started. Robert Burns carried No. 1 Cerritos down to 4,457 feet and finished the hole with a 4¾-inch liner, 180 feet perforated. The well is flowing by heads at the rate of 500 bbls. a day, the oil testing 21.8 degrees and showing a cut of less than 1 per cent. No. 1 Bell of the Bush-Voorhies Co. was a distinct disappointment, as the initial output, 130 bbls. daily from 4,455 feet, is cutting about 30 per cent water. Because of this large cut it is probable some additional work will be undertaken before listing it as a final completion.

George W. Johnston's No. 2 Cerritos was also somewhat of a disappointment, pumping only 100 bbls. daily. This hole was carried down to 4,392 feet and finished with a 4¾-inch liner. Johnston is experiencing a little hard luck as both Nos. 4 and 5 are held up with mechanical trouble and, while he will probably abandon No. 4 at 4,330 feet and skid the rig to a new location, the chances of recovery in No. 5 are favorable. The McKeon Oil Co.'s No. 4 Cerritos looked like a big well when given a test at 4,450 feet but suddenly turned to water and will require further work. There is some doubt as to what occurred and, although the indications point to bottom water, this will not be definitely determined until No. 5 Cerritos nearby is given a test at 4,455 feet. If McKeon succeeds in getting clean production in the latter it would indicate the water string in No. 4 has proven defective and that the trouble is due to mechanical difficulty.

Insufficient Gas

The Rainbow Petroleum's No. 6 Cerritos did not have sufficient gas pressure to come in under a natural flow and was put on the beam. Carried down to 4,500 feet and finished with a 4½-inch liner, 250 feet shop perforated, and 4,150 feet of 2½-inch tubing, it started off pumping 210 bbls. of 20.8 gravity oil, 6 per cent water and sand. Featherstone & Preston's No. 15 Cerritos, drilled to 4,439 feet and finished with a 4¾-inch liner, 180 feet shop perforated, was also a pumper but the initial output, 190 bbls. of 21.8 gravity oil, was unusually clean. The Star Petroleum Co. brought in No. 1 Colby from 4,485 feet, after finishing the hole with a 6¼-inch liner, 270 feet of which was 100-mesh screen. Flowing through a ½-inch bean under a pressure of 380 pounds, it tanked 245 bbls. of 22.6 gravity oil during the initial 24-hour test. Frank Travers of the Travers Drilling Co. finished his first producer in the northwest extension, a flowing well. He carried the hole down to 4,380 feet and finished it with a 4¾-inch liner and 3,750 feet of 2½-inch tubing. The initial output, 295 bbls. of clean 22.4 gravity oil, is flowing through a ¾-inch bean under a pressure of 390 pounds.

The Retsoff Drilling Co.'s No. 77 Cerritos has been finished at 4,380 feet and, while only the result of the first 12 hours' flow is available, it looks good for at least 300 bbls. daily. The company lost 3,505 feet of hole in No. 78 Cerritos because of an unsuccessful fishing job but will offset this loss with a completion when No. 79 Cerritos, being prepared for production at 4,385 feet, is turned loose during the next 10 days. The Whiston Oil Co. brought in No. 3 Cerritos from 4,430 feet, after finishing the hole with a 4¾-inch oil string and 4,000 feet of 2½-inch tubing. It is flowing through a ¾-inch bean under a pressure of 100 pounds and tanked 255 bbls. of 21.4 gravity oil during the first 24 hours. The Julian Petroleum has No. 1 Aidline and No. 1 Patton in the oil sand and these two, together with No. 1 Amsel, being prepared for production at 4,390 feet, should be tanking oil within two weeks. No. 1 Dunlap at 3,620 feet and No. 2 Parks at 4,340 feet of the same concern are held up with fishing jobs. The company, in addition to taking over the holdings of the Bruce Oil Co., purchased two lots at Thirty-sixth and American Avenue, upon which three wells will be started.

K. S. Deeds tapped the shallow gas zone on top of Signal Hill in the older section at 2,725 feet. Although the well got beyond control for a short time, it was soon capped and is delivering 16,000,000 feet of gas daily in the city of Long Beach. The gas is fairly dry and a test indicates it only contains one-fourth of a gallon of natural gas gasoline per 1,000 feet. The Marine Oil Corp. has purchased the property of the Davis & Haines Oil Co. and will, it is reported, deepen the two newly acquired wells from the present depth of 3,400 feet to the 4,500-foot level in the hope of better production. The Davis & Haines property is in the older section, not far from the cemetery, and since there is very little drainage in the vicinity, the Marine stands an excellent chance of recompleting the two wells good for around 500 bbls. each.

A check of work at the close of the week shows 79 drillers in the northwest extension below the 4,000-foot level, compared with 68 the previous week. A considerable number of these wells should come into production within three weeks and, since there are 33 more at present rotating ahead between 3,000 and 4,000 feet, it looks as though we can anticipate a fairly large number of completions up through at least the early part of March. There are at present 20 drillers ranging in depth between 1,000 feet and 3,000 feet, half of which are around 2,500 feet. Only 2 wells were checked above 1,000 feet but, since this small number was due to curtailed work resulting from the heavy rains, it will undoubtedly be much larger next week.

Inglewood

The Standard brought in No. 39 on Los Angeles Investment Lease No. 1 at Inglewood, flowing 1,740 bbls. of 22.6 gravity oil daily, and incidentally completed its present drilling program on this property. Although it is not certain further work will be held up, this would seem logical, as its properties are protected from drainage by two lines of offset wells. The company's only activity at present on Los Angeles Investment Lease No. 1 consists of a few cleanout jobs but it is possible that No. 4 Stocker and No. 20 on Vickers Lease No. 1 will come into production shortly. The Standard's latest completion, No. 39, was carried down to 2,600 feet and finished with an 8¼-inch oil string, 1,096 feet of which was 90-mesh screen. No. 6 on Los Angeles Investment Lease No. 2, the company's deep test, is rotating ahead in a barren gray sand at 5,400 feet.

The Pacific Oil Co. recompleted No. 22 Baldwin after redrilling and deepening it to 3,075 feet and finishing the hole with an 8¼-inch oil string. It came

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This Week	Daily Average	Total Last Week	Daily Average	This Year To Date	Same Time Last Year
Crude oil	152,496	21,785	405,807	57,973	1,410,177	1,776,132
Fuel and gas oil	171,595	24,513	78,169	11,167	1,000,443	81,539
Gasoline	75,611	10,811	172,503	24,643	732,555	151,764
Tops	.....	.....	.....	.....	74,619	.....
Coastwise						
Crude oil	322,859	46,123	584,806	83,401	2,298,440	3,142,700
Fuel and gas oil	135,124	19,303	203,479	29,068	811,237	1,312,781
Gasoline	55,194	7,927	291,212	41,602	906,917	500,285
Kerosene	.....	.....	17,161	2,452	27,544	24,169
Tops	25,491	3,641	60,997	8,714	97,299	41,010
Exports						
Crude oil	.....	.....	55,431	7,919	222,448	329,653
Fuel and gas oil	356,201	50,886	667,555	95,365	1,950,462	1,138,388
Gasoline	159,380	22,768	143,288	20,470	521,822	480,360
Tops	.....	.....	.....	.....	.....	89,932
Kerosene	212,148	30,307	.....	.....	311,791	255,039
SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS						
Gasoline	.....	.....	73,889	10,556	243,987	77,612
Tops	.....	.....	.....	.....	.....	311,252
Lubricants	.....	.....	82,025	11,178	82,025	81,939
Coastwise						
Fuel and gas oil	75,191	10,741	63,517	9,074	487,456	321,791
Gasoline	61,915	8,845	98,663	14,095	395,965	405,306
Kerosene	8,092	1,156	25,463	3,638	61,002	62,404
Exports						
Fuel and gas oil	160,383	22,912	.....	.....	472,408	184,217
Gasoline	.....	.....	.....	.....	.....	45,238
Kerosene	195,340	27,906	.....	.....	332,688	33,419

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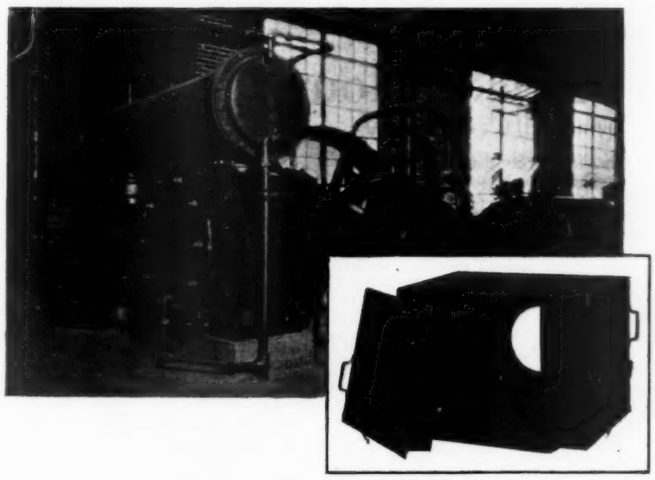

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in flowing through a ¾-inch bean and tanked 395 bbls. of 17.6 gravity oil the first 24 hours. The Mohawk Oil & Gas finally finished No. 5 Machada after several months' work but the result was rather unsatisfactory as the production, 150 bbls. daily, is cutting 25 per cent water. This hole, drilled into bottom water at 3,233 feet, was plugged back to 2,696 feet and finished with an 8¼-inch liner, 400 feet shop perforated. The Associated's No. 44 Vickers looks like an early completion in the shallow zone, as it is showing considerable oil and gas at 1,588 feet.

Rosecrans

Drilling work in the Rosecrans Field is going ahead rather slowly due to only the Barnsdall and Union having any amount of undeveloped acreage and they are maintaining their commendable policy of conservative development. The former company is only working on one driller, No. 9 O'Dea, now at 4,153 feet, although it has one or two cleanout jobs on its hands. No. 4 Rosecrans, now at 4,009 feet, will, it is reported, be conditioned and completed as a gas well. The Union has two drillers on the Rosecrans property and four on the Howard Park lease, in addition to several producers temporarily off production. No. 14 Howard Park was given a preliminary test at 5,334 feet, but it looks as though bottom water has been encountered, which, if true, will necessitate plugging back before clean production can be expected.

One new well, Walter H. Fisher's No. 13 Athens, was finished but it was good for only 545 bbls. of 33.4 gravity oil daily from 5,232 feet. It is flowing through a ⅞-inch bean under a pressure of 350 pounds. George F. Getty, deepening his No. 4 Athens, found a little encouragement at 4,972 feet but further hole will be required before commercial production can be anticipated. The United's No. 3 Pacific Petroleum has also shown some favorable indications and will be given a test from 5,221 feet.

The Shell's No. 8 Redondo at Torrance ran true to expectations when it turned out to be a 125-bbl. pumper from 3,560 feet. The oil is of a rather low quality and, due to the water content of 7 per cent, tests only 14.1 degrees. The gravity will, upon dehydration, show a somewhat higher gravity. The company still has on this lease two recent spuds, Nos. 12 and 13, although No. 11 is standing rigged up, it has not yet been spudded in. The R. & D. Oil Co. finished drilling its No. 1, an offset to No. 2 Cravens of California Petroleum, but only a comparatively small pumper is anticipated at the present depth, 3,585 feet. The Chanslor-Canfield Midway Oil Co. put No. 80 Del Amo on a preliminary test but, since it is still pumping dirty oil to sump, no figures are available for completion. It is doing approximately 50 bbls. a day from 3,492 feet, but may clean up and show a corresponding increase after being on the beam for a few days. The company made unusually rapid progress with No. 52 Del Amo, drilling the first 440 feet of hole in a little over 12 hours.

Huntington Beach

It is estimated 50 per cent of the total restricted area at Huntington Beach, exclusive of the Standard's holdings, has been leased. Records indicate that approximately 16 companies have acquired properties, some purchased in fee, the buyers gambling on the possibility that this area will be opened up for drilling. The Crude Oil Co., affiliated with the Jamison Oil Co., has taken over the old Golden State's well, which has been standing suspended for several years at 2,560 feet, and will endeavor to secure production by deepening. The Standard is still busily at work developing its Lease B and, although only 4 wells are being put down they are of interest because of their location. The two drillers on the Bolsa Chica lease should also be of interest within 30 days, as they will extend the productive limits if commercial production is secured.

The McGinley Co. finished two comparatively small pumpers at Montebello and their completion leaves one driller, No. 24, to be finished. The two new wells are Nos. 19 and 23, the former good for 170 bbls. daily from 3,522 feet and the latter 125 bbls. from 3,570 feet. The St. Helens Petroleum has started rig construction for No. 12 Monterey, but it is not believed it will be spudded in before the completion of No. 11, now rotating ahead at 3,338 feet. The Superior Oil Co. reports a showing of oil and gas in No. 1 Manz at 3,700 feet and it is probable this may result in an early spud in No. 3 Howard-Smith and No. 1 Harvey of the Standard.

Fullerton

The Union is running a string of 10-inch in its Fullerton wildcat, No. 1 Olinda, and will land on bottom at 2,884 feet. This well, together with No. 2 Olinda at 2,741 feet, are very important tests as if either comes into production the Union will extend its productive acreage considerably. A completion would add approximately 1,000 acres capable of yielding wells running around 150 bbls. each. The Union has two other drillers at Fullerton, Nos. 66 and 67 on the Stearns lease but these two, going ahead at 1,500 feet, are in proven territory and therefore potential producers. The Birch is deepening its No. 2-A, and building a steel rig for a new well to be designated as No. 1-A. The only other wells of interest in the Fullerton Field are Nos. 27 and 38 of the Brea Canyon Oil Co. and No. 10 Orange of the Shell, all three going ahead satisfactorily.

The Birch Royer Oil Co. is still attempting to complete No. 1 Ninno at Coyote as a commercial producer and will run a water witch in an effort to locate the water entering the hole. E. L. Blanton's No. 1 Gualdine is going ahead very nicely at 3,100 feet in a sandy brown shale. There are some 5 or 6 wells drilling in the Richfield district but none yet deep enough to come into production. The Standard's No. 20 on Kraemer Lease No. 2 has been showing oil and gas and, although it would probably not be commercially productive at the present depth, 4,229 feet, it should come in as a satisfactory producer with the addition of some more hole. No. 21 on this lease has just been spudded in, the depth being 306 feet. The Marland has decided to resume drilling at 4,872 feet in No. 1 Bixby at Seal Beach and will carry the hole down in an effort to determine if there is a deeper and more productive horizon. The Shell carried No. 2 Bryant down to 6,139 feet before plugging back to 5,076 feet. No. 4 Bryant, another Shell well on a line midway between its own No. 1 Bryant and No. 1 Bixby of the Marland, the only two producers in the field, is rotating ahead at 1,796 feet. Neither the Union nor Standard has yet shown any inclination to start actual work on their respective leases, although it is understood tentative locations have been decided.

Midway-Sunset

There has been no change in the status of any of the wells being carried down to the Obispo zone in the Maricopa flats but developments indicate an apparent lenticular condition and it does look as though this sand will be as productive as expected. The present outlook is based on only a meagre amount of data and subsequent work may change the entire situation. King C. Gillette was the only operator to put a well on production in the Midway-Sunset area during the week and, although his No. 1 Bell in Section 21-31-22, was only a 40-bbl. pumper, it was commercially productive because it only required 1,085 feet of hole. The Balboa Oil Co. has let a contract to the Federal Drilling Co. for the drilling of No. 41 in Section 24-31-23, and rig construction will get under way next week. Barring mechanical trouble, the Gross Drilling Co. will bring in its third producer at Elk Hills during the next 10 days and the outlook is favorable for a good well.

There has been considerable leasing in the San Joaquin Valley in the past several months and some additional acreage was signed up the past week. The Marland Oil Co. has secured a 120-acre tract between Lost Hills and Belridge, agreeing to drill at least 6 wells if oil is found in commercial quantity. The company is not obliged to drill immediately, however, and it is possible work will be held up for some time. The Redondo Drilling Syndicate has leased approximately 50 acres 5 miles west of Bakersfield in virgin territory and will drill a shallow test. George F. Getty's No. 1 Grimes, the outpost farthest away from the productive limits of the old Kern River Field, has passed the 2,500-foot level without getting even a gas showing. The Poso Creek is quiet, the Shell being the only company doing any work. King C. Gillette has taken over a Government permit covering 160 acres on the Maricopa front, held by Walter Stalder and H. Grusenmeyer and will undertake immediate work. The Chanslor-Canfield Midway Oil Co. has leased an additional 80 acres southeast of Famosa and northwest of the Kern River Field on a one-eighth royalty basis. Until work starts the company will pay a small yearly rental and will be obliged to drill eight wells if the property is productive.

Ventura

There were no wells finished in the Ventura Avenue Field, although there are one or two about ready to be turned loose. The Associated's No. 20 Lloyd, now drilling ahead at 5,566 feet, looks like an early completion as it has been in the oil sand for some time. No 27 Lloyd is showing oil and gas at 4,725 feet, but will probably be carried to at least 5,000 feet before a test. No. 101 Lloyd, an important outpost, is held up with a fishing job and it will probably be several weeks before a recovery will be made. The drill pipe froze several weeks ago at 5,190 feet and three stands are in the hole. If this mechanical trouble had not developed the Associated would probably have had this well on production as it looked very promising. None of the drilling projects of the Shell in this area is deep enough to be of interest at present but will probably have an appreciable effect on production early in summer. The company's present drilling program consists of two wells on the Edison lease, five on the Gosnell property and two rigs going up on the Taylor lease.

The General Petroleum is working on only two holes, No. 3 Barnard at 3,040 feet and No. 10 Notten at 1,265 feet. The two most important outposts, No. 1 Hartman of the Bolsa Chica, and No. 1 Willett of the Petroleum Securities, are down 3,300 feet and 3,222 feet respectively. No additional footage has been made for several weeks in the Chanslor-Canfield Midway Oil Co.'s No. 1 Hobson, a wildcat in Ventura County, due to mechanical trouble at 3,220 feet. The Milham Exploration Co.'s No. 1 Sexton, east of the Associated's No. 101 Lloyd, is drilling ahead in a sandy shale at 1,900 feet. The Shell's No. 1 Berlywood was reported early this week at 650 feet, while the Standard's diamond core structure hole, No. 1 near Montalvo, is about ready to be spudded in.

Southern California Wildcats

The Russell Petroleum Co. expects to make a production test in its Chatsworth wildcat, No. 1 Joughin, as soon as preliminary preparations can be made. The well is approximately 4 miles north of Chatsworth and at a considerable distance off the highway. The roads are bad in wet weather and it is problematical how soon the company will be able to haul in equipment. The Marland's two Southern California wildcats, No. 1 Connelly at Hyde Park and No. 1 Wickham in the Newhall-Saugus area, are down 3,400 feet and 2,651 feet respectively. The former has not given any en-

(Continued on Page 105)

Rocky Mountain Area

By Frank B. Taylor

CASPER, Wyo., Feb. 20.—The Midwest Refining Co. brought in a big well at Salt Creek the past week on Section 23-40-79, in the Lakota sand at 2,970 feet. The well is estimated good for 6,000 bbls. daily and is the largest well brought in for several months. It will be shut in as the Midwest is holding all Lakota sand wells for the future, obtaining all the present field production from the sands above the Lakota. The policy of the Midwest Refining Co. and the associated oil companies that are merged with the Midwest in Salt Creek is to take the first and second Wall Creek production as long as these sands will provide what crude is wanted by market demands. When these sands commence to fail, then it is expected that the lower sands, the Lakota and Sundance, will be drawn upon, but it is considerably cheaper for the companies to keep the oil in the ground instead of taking it out and tanking it on the surface. There is no chance of loss where the oil stays in the sand and no likelihood of its migration in a structure like the Salt Creek Field.

The Cane Creek discovery near Moab, Utah, drilled by the Midwest Refining Co. and the Utah Southern Oil Co. is still a mystery. Swedges were tried in the hole the past week and both a 6 and 8-inch swedge were run through the collapsed joints at the bottom of the 10-inch string of casing. However, it was found that the casing is split in one or two joints and now a 10-inch swedge will be tried and if this can be placed to bottom, then a string of 8-inch casing will be run to the bottom of the hole and the well drilled in.

It will probably be two weeks before the 8-inch string will be set and ready to drill in with good luck and a delay may occur that would lengthen this time into months. The men who placed large sums in nearby leases and permits, expecting to know the result in a few days, are beginning to feel themselves in hot water unless they have sufficient capital to back up the promised payments.

The State lease of 160 acres which has been in the courts since July, 1924, on a piece of State land in the Grass Creek Field,in the Big Horn Basin was formally awarded to F. E. Hurley, vice president of the Ohio Oil Co. This tract was claimed by H. A. Miller, of Lusk, Wyo., through a technical phrase in a bid submitted by him and the matter was taken before the Land Board and then to the District Court. Both the board and court affirmed the decision in favor of the Ohio Oil Co.'s official. The State's royalty calls for 33 1/3 per cent of the production.

New Test for Utah

On the Schaffer Dome, in the Moab district of Utah, about 5 miles south of the Cane Creek well, the Midwest Refining Co. will start drilling a new well in the near future. The Midwest Refining Co. and the Utah Southern Oil Co. drilled the joint well at Cane Creek and then a mutual agreement was reached between the companies for a division of the leases. Through this division, the Midwest Refining Co. secured what is considered some excellent tracts on the Schaffer Dome and will start testing that structure with a deep well at once.

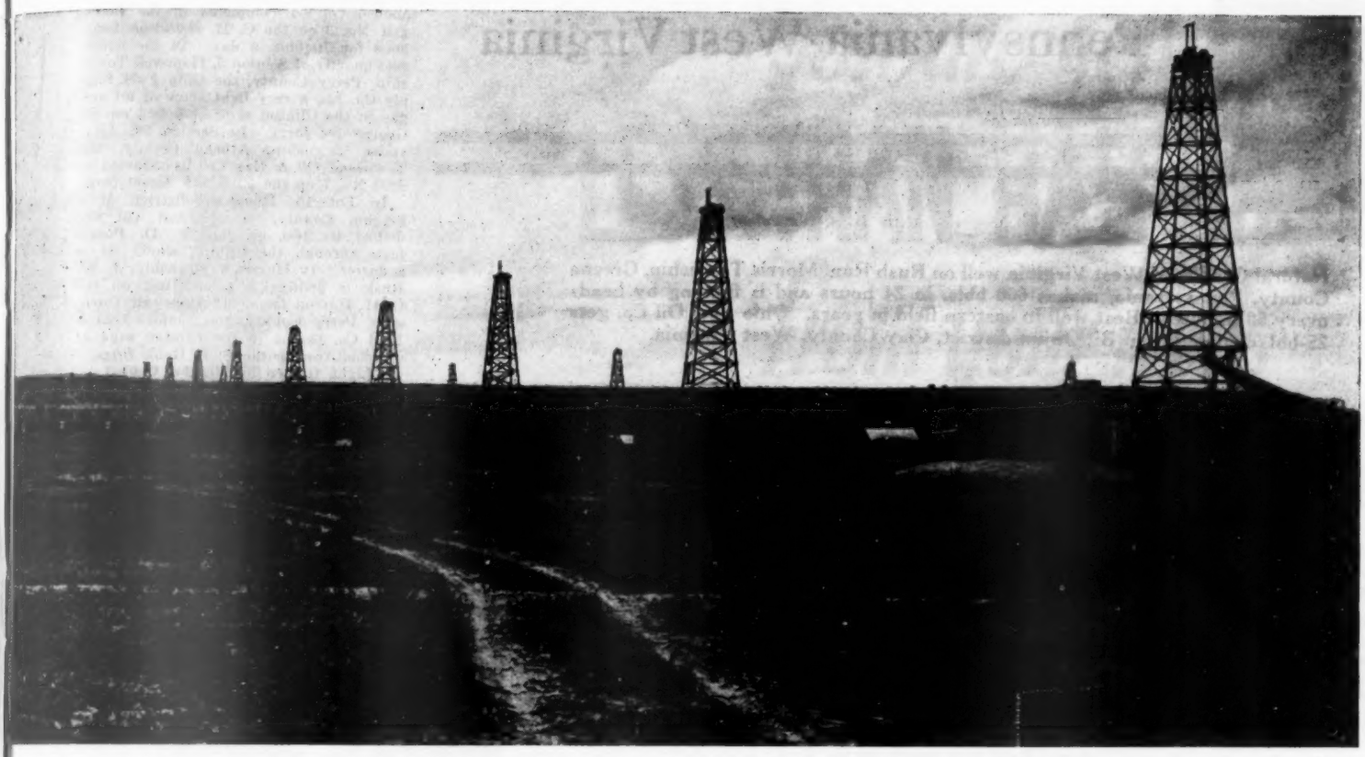
Heavy snow storms over Wyoming and Montana have again closed many roads to the fields.

Two important wildcats are drilling on the outskirts at Artesia, N. Mex. On the west side of the Pecos, the McFrederick Syndicate is putting down a test on Section 15-19-25 that is at 2,710 feet and has passed through one sand at 2,650 feet that showed for a small producer.

The Ohio Oil Co. drilled in a 60-bbl. well on Section 5-18-28, finding production at 2,363 feet. The Williams Petroleum Co. found a 50-bbl. well on Section 17-18-28, at 2,170 feet.

All operators in the Artesia Field, drilling or operating on Government land, have been notified to place signs on each well giving the name of the company and the number or location of each well,

(Continued on Page 121)



The Golden Lane of the Texon Oil & Land Co., Santa Rita, Tex. Looking south.

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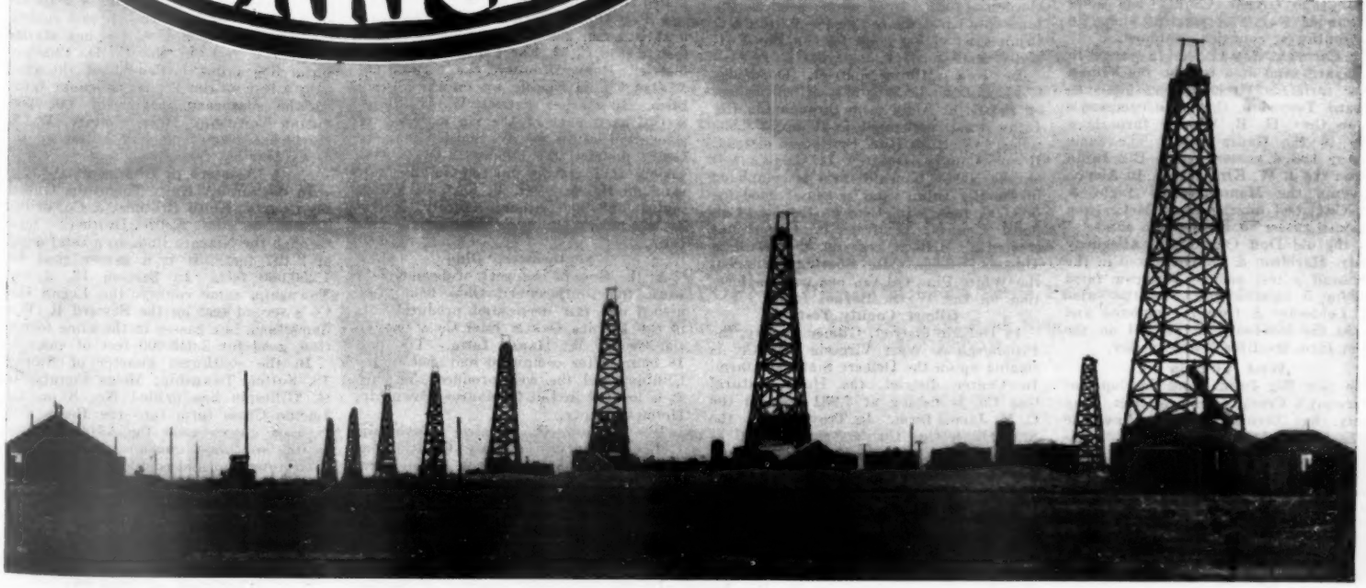
TULSA, OKLA. Atlas Life Building
SHREVEPORT, LA. 414 Merchants Building
PARKERSBURG, W. VA. Union Trust Building

The Golden Lane of the Big Lake Oil Co., Texon, Tex. Looking east.



Pennsylvania-West Virginia

By D. S. Wakenight

Natural Gas Co. of West Virginia well on Rush Run, Morris Township, Greene County, Pennsylvania, makes 600 bbls. in 24 hours and is flowing by heads every 50 minutes. Best well in eastern field in years. Ohio Fuel Oil Co. gets 25-bbl. completion in Big Injun district, Clay County, West Virginia.

PITTSBURGH, Pa., Feb. 20.—None more appreciate the advance in the market than the owners of light pumpers in old territory, for a very long time these producers have not been able to much more than meet expenses. Another result of the higher market will be to encourage operators to start new work in old territory. In many of the old districts there has been nothing doing for several years. If the market is not "pegged" and goes higher it will inspire operators to again take up the search for new producing territory. In the deep sand territory in southeastern Ohio testing leases has been a feature and many are known to be productive but development held in abeyance until the market advanced.

The thing of most importance in the way of field developments was the drilling in of a gusher in Rush Run, Morris Township Green County, Pennsylvania. The size of the well is more important than the location since other good producers have been completed in the same locality. The well is owned by the Natural Gas Co. of West Virginia, a subsidiary of the Manufacturers Light & Heat Co., and is this company's No. 3 on the T. F. Rutan farm. When drilled into the Gordon sand the well began to flow at the rate of 30 bbls. an hour and produced 600 bbls. the first 24 hours. At the expiration of that time the well was still flowing by heads every 50 minutes. With a single exception, this is the largest producer completed in the eastern fields in a number of years. In the same locality there will be three more wells due within a week. All are favorably located for good producers.

In the same township, the Carnegie Natural Gas Co. completed and shot in the Gordon sand a second test on the James S. Rutan farm good for 20 bbls. a day. No other section in the southwest fields looks promising for anything better than very light pumpers. At the present time Greene County has more work under way and starting than all other southwest counties combined.

The Carnegie Gas Co. has a gasser in the Bayard sand at a test on the Vinton Blaker farm, in Greene Township. In Dunkard Township, the same company's test on the H. B. Weaver farm is a gasser in the Gantz sand. The same company has a gasser in the Big Injun sand on the J. W. King farm. In Aleppo Township, the Manufacturers Light & Heat Co.'s test on the Lucy McCracken farm is a gasser in the Gordon sand.

In the old Duff City Field, Allegheny County, Harbison & Co. completed in the Snee sand a test on the Withrow farm good for 5 bbls. a day. In the same field, Leidecker & Gosser completed and shot in the 100-foot sand No. 4 on the Shenot farm good for 3 bbls. a day.

West Virginia

The new Big Injun sand development on Granny's Creek, Henry district, Clay County, has furnished another average producer for that development. It is the Ohio Fuel Oil Co.'s No. 7 on the J. B. Casto farm and good for 25 bbls. a day in the Big Injun sand. The location is 600 feet north of No. 5 on the same farm.

At Metz, Mannington district, Marion County, the Clifton Oil & Gas Co. has drilled No. 4 on the O. N. Koen farm through the Big Injun sand good for 5 bbls. a day. In Union district, Tyler County, Knowlton & Thomas drilled their test on the Goff-Hayes farm through the same formation, dry and abandoned.

In Union district, Wood County, Hinds Peevey completed No. 3 on the Hebrank-Rapp heirs' farm good for 3 bbls. a day in the second Cow Run sand. In Elk district, Harrison County, the Grasselli Chemical Co. has a fifth-sand gasser at a test on the Mary E. Norman farm. In Union district, Tyler County, Albert Neeley's test on the Eliza Henderson farm is dry in the Big Injun sand. It has been filled back and will be tested in the salt sand.

In Smithfield district, Roane County, the United Fuel Gas Co. completed a test on the G. W. Sarver farm, a gasser in the Big Injun sand. In Geary district, the same company's test on the G. W. Osborne farm is a gasser in the same formation. In the same district, the same company has a gasser on the M. M. Carper farm.

In Cass district, Monongalia County, the Carnegie Natural Gas Co.'s test on the H. B. Weaver farm is a gasser in the Big Injun sand. In Union district, Marshall County, the Narrows Oil & Gas Co.'s test on the Samuel Morris farm is dry in the Big Injun sand.

Wetzel County

In Church district, Wetzel County, the Manufacturers Light & Heat Co. has a Big Injun sand gasser at a second test on the Donley Renner heirs' farm. In the same district, the Carnegie Natural Gas Co.'s No. 3 on the J. E. Kimble farm is dry in the salt sand. In Center district the Hope Construction & Refining Co.'s No. 5 on the J. A. Riter farm is a very light pumper. In Church district, the R. C. Gover Oil & Gas Co. has a gasser in the Big Injun sand at a test on the H. C. Gover farm.

In Grant district, Ritchie County, the Carnegie Natural Gas Co.'s test on the A. L. Davisson farm is a duster in the Gordon sand. In Union district, the same company has a gasser in the Big Injun sand at a second test on the A. I. Kelly farm.

In New Milton district, Doddridge County, J. E. Trainer has drilled his test on the R. E. Kelly farm through the Big Injun sand, estimated good for 7 bbls. a day. On Rush Run, Smithfield district, Roane County, Godfrey L. Cabot's test on the Nettie Kincaid farm is completed in the Big Injun sand, a gasser good for 500,000 feet. In Center district, Calhoun County, Godfrey L. Cabot has started to drill a test on the William Umstead farm. In Sheridan district, the White Pine Oil Co. has made a location on the W. S. Barnes farm.

Gilmer County Tests

In DeKalb district, Gilmer County, the Pittsburgh & West Virginia Gas Co. is rigging up on the Delbert Stalnaker farm. In Center district, the Hope Natural Gas Co. is fishing at 1,931 feet on the C. M. James farm. In Troy district, the Star Oil & Gas Co. has rig material at a location on the S. B. Wiseman and Porter G. Nutter farms. On the north fork of Hughes River, Grant district, Ritchie County, the Hope Construction & Refining Co. has the rig completed for a test on the B. F. Phillips farm.

On Meadow Run, of Gosse Creek, Grant district, Ritchie County, John Starcher has completed in the Big Injun sand a second test on the Metz heirs' farm. It is a duster and has been abandoned. On the same stream and same district, the Swingle Oil & Gas Co. has drilled its test on the Keller heirs' farm through the Berea grit and dry. On Fink Creek, Freemans Creek district, Lewis County, the Philadelphia Co. has the rig completed for a test on the T. C. Waugh farm.

In Ten-Mile district, Harrison County, R. T. Lowndes is drilling at 2,550 feet on his own farm. In Union district, Marshall County, W. F. Burgess & Co. started to drill on the M. Marison farm. In Battelle district, Monongalia County, the Cleveland & Cameron Gas Co. is due in the Big Injun sand on the Gilmore farm.

Ritchie County

Ritchie County is completing more wells than any other county. In Grant district, Rawe Brothers completed in the Big Injun sand No. 5 on the Lowther Brothers' farm, good for 50 bbls. a day. The Southern Oil Co.'s No. 1 on the D. L. Kimble farm, an old well drilled deeper, is a gasser in the Big Injun sand. In Murphy district, C. W. Baker & Co.'s test on the James Hardman farm is a gasser in the same formation. In McKim district, Pleasants County, the Rice Oil Co.'s test on the J. E. Bramer farm is a light gasser in the salt sand.

Good Gasser in Lewis County

In Skin Creek district, Lewis County, E. G. Smith and others has a gasser in the Gantz sand at a test on the Martin J. Whalen farm good for 5,000,000 feet of gas. In Collins Settlement district, the Pittsburgh & West Virginia Gas Co. has the rig completed for a test on the D. L. Linger farm.

Starting Tests

In Union district, Ritchie County, the Carnegie Natural Gas Co. has rigs completed for tests on the Martha Bathon and Smith heirs' farms. The Pittsburgh & West Virginia Gas Co. has rigs completed for second tests on the W. B. Zinn and J. E. Sheets farms. The Hope Natural Gas Co. has a rig up for a second test on the L. M. Ehret farm. In Geary district, Roane County, the Stump Oil & Gas Co. is rigging up on the Stump farm. In Harper district, W. W. Smith & Co. have part of the rig material at a location on the W. W. Smith farm. In Geary district, the Cromwell Oil & Gas Co. is still testing for oil in the salt sand on the I. O. O. F. lot. In Washington district, Calhoun County, Norris & Cain have a rig up on the Nancy Jarvis farm.

Southeastern Ohio

At the close of the week of development work the southeastern Ohio fields furnished one fair deep sand producer. It is the Empire Gas & Fuel Co.'s test on the George W. Hanna farm. The first 18 hours after completed and shot in the Clinton sand the well produced 50 bbls. It is located in Lot 6, Monroe Township, Holmes County.

In Section 18, Prairie Township, Holmes County, the Pure Oil Co. has drilled No. 3 on the Carnot Millier farm into the Big Lime formation, showing for a very light pumper. It showed very little oil and was shot. They are now cleaning out and will give it a test. The Big Lime formation was reached at 2,835 feet.

In the northwest quarter of Section 21, Jackson Township, Knox County, the Marget Oil Co. completed in the Berea grit No. 3 on the C. H. Davidson farm, good for 10 bbls. a day. In the northeast quarter of Section 5, Hopewell Township, Perry County, the Ohio Fuel Supply Co. has a very light show of oil and gas in the Clinton sand at a test on the George Ice farm. In Section 24, Alexander Township, Athens County, the Townsend Oil & Gas Co. has started to drill No. 7 on the Elizabeth Smoot farm.

In Lot 15, Hopewell district, Muskingum County, the Mideast Oil Co. drilled its test on the W. D. Porter farm through the Clinton sand. It is a duster. In Harrison Township, J. W. Rusk is drilling a second test on the O. H. Harrop farm. In Hopewell Township, Perry County, the Empire Gas & Fuel Co. is due in the Clinton sand at a second test on the B. F. Goble farm.

Light Gasser in Morgan County

In the northwest quarter of Section 29, York Township, Morgan County, the Sun Oil Co. completed in the Berea grit No. 3 on the Joseph Longstrath farm. It is a light gasser in the formation named. In Section 31, Warren Township, the Bowman Oil & Gas Co. has the rig completed for a test on the O. M. Lovell farm. In York Township, the Pure Oil Co. is drilling another test on the Wilbert Bush farm.

Licking County

In Section 15, Perry Township, Coshocton County, the Preston Oil Co. is drilling a Clinton sand test on the Nora McKee farm. In Section 15, Murphy & Co. are due in the Clinton sand at a test on the Wheeler Mossholder farm. At a test on the Clinton McKinney farm, in Newton Township, Licking County, Framer & Rugg have a 6-bbl. pumper in the Berea grit.

In Section 2, Franklin Township, Licking County, the Ohio Fuel Supply Co. has drilled a test on the E. J. Kelley farm into the Berea grit and is a gasser good for 1,800,000 feet. In Section 21, Union district, Knox County, the Pure Oil Co. drilled its test on the M. Gann farm through the Clinton sand and is a duster. The location is 600 feet southwest of the same company's test on the Martha Hibbets farm and 800 feet southwest of its test on the W. D. Gaston farm.

Light Pumper in Shallow Sand

In the southwest quarter of Section 16, Newport Township, Washington County, the Peoples Banking & Trust Co. of Marietta, has a very light pumper in the First Cow Run sand at No. 20 on the S. W. and J. I. Huff farm. In Lot 1, Licking Township, Muskingum County, the Pure Oil Co. is drilling another test on the C. H. Wright farm.

In the northeast quarter of Section 8, Hopewell Township, Perry County, the Ohio Fuel Supply Co.'s test on the Frederick Mechlin farm is a light gasser in the Clinton sand and showing a little oil. In Section 7, same township, and county, the Empire Gas & Fuel Co. has started to drill a test on the C. D. Chalfant farm, 3½ miles southwest of the company's test on the W. H. Ridenour farm. In the southeast quarter of Lot 286, Sutton Township, Meigs County, W. N. Hovis has started to drill a test on the J. C. Hartley farm.

Gassers in Guernsey

In Section 18, Knox Township, Guernsey County, Keith Brothers & Co. drilled a test on the Keith Brothers' farm through the Niagara lime, to a total depth of 3,197 feet. It is a gasser good for 1,250,000 feet. In Section 13, Adams Township, same county, the Logan Gas Co.'s second test on the Seward R. Williams farm is a gasser in the same formation, good for 3,645,000 feet of gas.

In the southwest quarter of Section 18, Sutton Township, Meigs County, R. G. Gillespie has drilled No. 8 on the Lucius Cross farm into the Berea grit. It is a gasser good for 1,500,000 feet. In the southeast quarter of Section 31, same township and county, P. L. Clinton and others have drilled a test on the Ernest McBride farm into the Berea grit and is a light gasser, with a very little show of oil.

Light Pumper in Perry County

In Section 12, Monroe Township, Per-

(Continued on Page 98)

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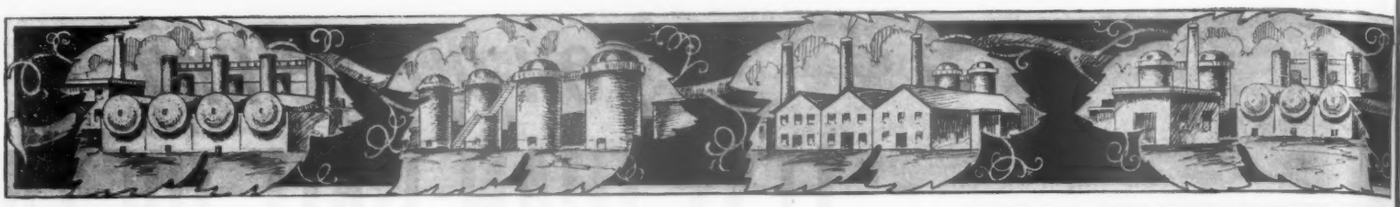

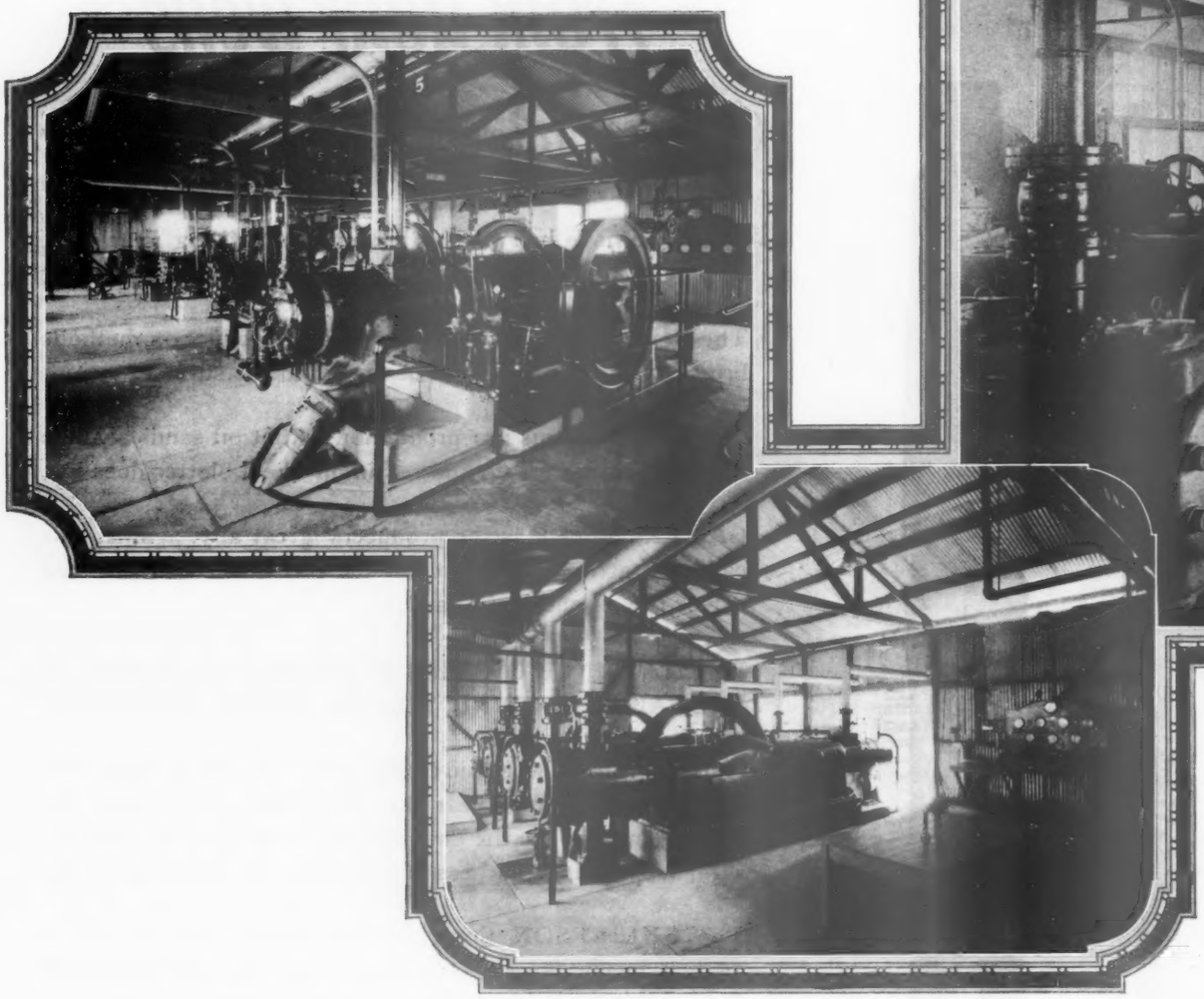

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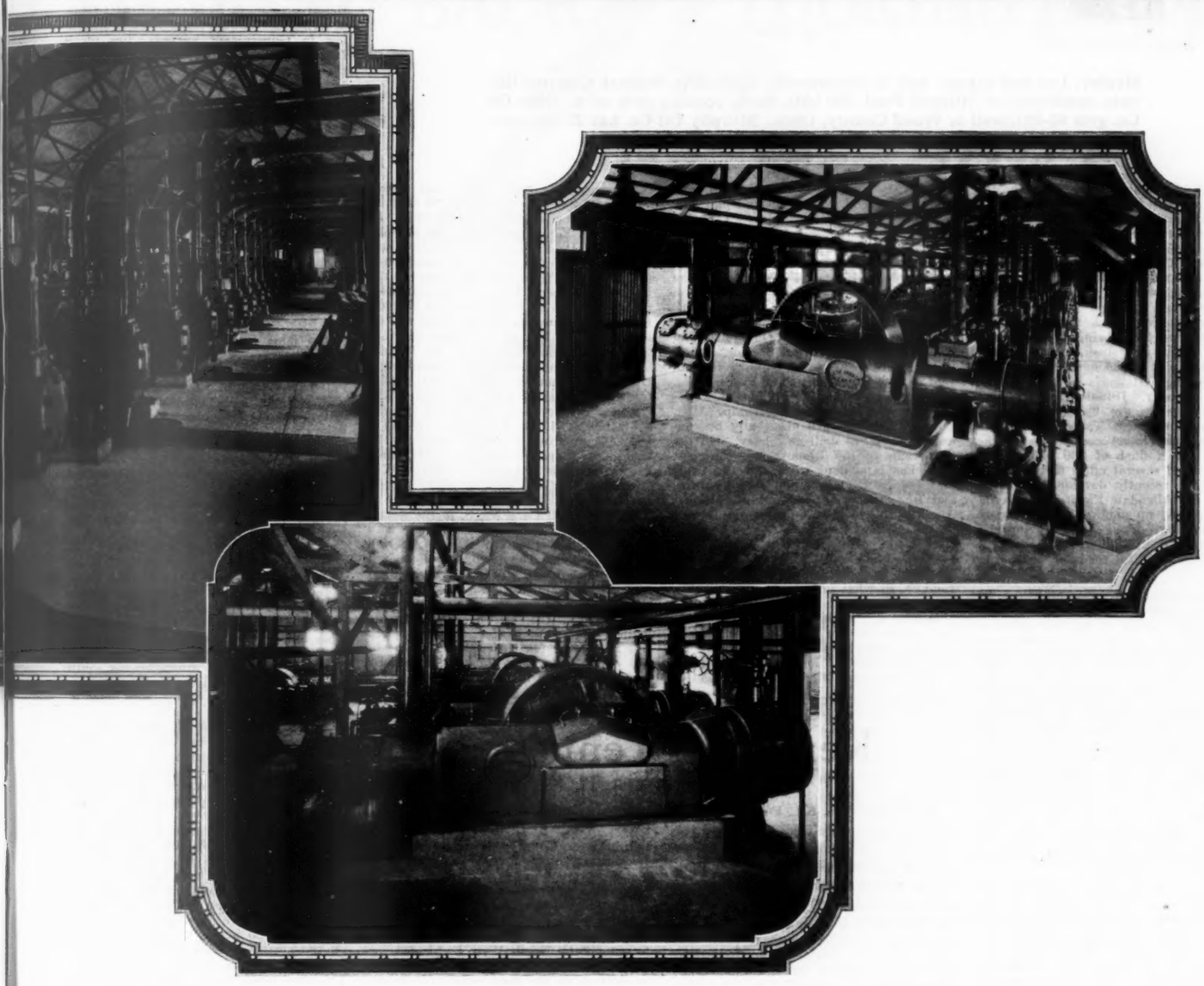

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PRESSORS

Fields of the Central West

By Whit

Henley, Lee and others' well in Friendsville Township, Wabash County, Illinois, southwest of Stillwell Pool, 200 bbls. flush, opening new area. Ohio Oil Co. gets 60-bbl. well in Wood County, Ohio. Murphy Oil Co. has 25-bbl. producer in Pike County, Indiana; Rendal & Chadler, 22 bbls.

FINDLAY, Ohio, Feb. 20.—In the division of the Central West Field of the Ohio River there were a total of 32 completions reported for the week with a flush of 455 bbls., 9 dry holes and 7 gas wells. These wells were distributed in central and northwestern Ohio, Indiana and Illinois. The weather conditions were bad for field work owing to the heavy snows which melted with a change of weather, bringing the roads to a sea of mud and slush, so moving materials was out of the question.

The leading activity is centered in the Wabash County, Illinois, area, where some good wells are being brought in from time to time. The wildcat Bass farm well, the latest completion in the county, with a flush of 200 bbls. under pump, located several miles to the southwest of the recently developed Stillwell Pool, in the Allendale Field of this county, has stirred up another good prospect for wildcatting. The cost of moving materials may delay activity in the new section, owing to bad roads at their best.

Lima Field

Northwestern Ohio was hit hard by the heavy snow which caused almost a complete shut down of drilling wells, or the moving of supplies for additional wells. Only one completion was reported, the Ohio Oil Co.'s No. 12 well, 1,300 feet from the south line and 500 feet from the west line of the Caleb Mercer farm, in the southwest quarter of Section 12, Liberty Township, Wood County. Top of Trenton was struck at 1,268 feet and drilled 186 feet in to a total depth of 1,454 feet, the well producing under pump 60 bbls. the first 24 hours without pumping off. This is considered an exceptionally good well for the old field that has been producing for close to 40 years and shows the producing sand is yet capable of furnishing commercial producers at a normal cost.

The trade is watching closely the development work in all sections of the old Lima Field and many inquiries are received asking what the prospects are for the current year. Much leasing has been done on the outer edges of the old-time defined area, while much acreage is being taken on territory that was drilled and abandoned after many years, and which will be tested for lower pay streaks in the Trenton Rock. In the years gone by this formation was not penetrated to a depth much below 100 feet while oil in good quantities has been found 450 feet in the formation, with several showings from 100 feet in the sand to as far as the drill has penetrated. The Trenton in spots where drilled through is known to be more than 800 feet thick with the St. Peter formation just below. What is below the St. Peter in the Lima Field is now known as the drill has not as yet tested out the lower extremities, although a 5,000-foot hole would make a nice test and settle for all time whether it would pay to go below the Trenton.

Wildcat ventures do not attract attention of operators as was the case some years ago. It has always been the theory that the field a mile or so southeast from Elmore in Ottawa County and at Limestone in Benton Township, same county, showed the extreme eastern productive area of the Trenton. Things have changed and production has been found at least 20 miles farther east and on Catawba Island, where the Underwood Oil & Gas Co. and the Catawaba Oil & Gas Co. now have commercial production and pipe line connections are being made to care for the output of the wells. Thousands of acres have been leased between the old field and the Catawba wells and the coming summer should see some active development work between, as well as on the Island.

Along the Ohio-Indiana State line, with Paulding County on the Ohio side and Allen County on the Indiana side, is destined to see quite a flurry with the advent of better weather. The Payne Field, in Paulding County, Ohio, and the Gerber Pool, in Maumee Township, Allen County, Indiana, will eventually be connected when the drill gets busy. On the south side of the Lima Field, sufficient work has been done to satisfy the trade that Hardin, Shelby and Darke Counties and the southern portion of Mercer, Auglaize and Allen Counties, are in line for much new work.

Indiana Field

Five completions were reported from the fields in the southwestern part of Indiana, in what is known as the Princeton district.

Rendal & Chadler's test in the southeast corner of the T. Miley heirs farm, in the northeast quarter of Section 14, Logan Township, Pike County, adds quite a few locations of probably productive territory to the field. This well struck sand at 1,366 feet and oil at 24 feet in, the well showing a flush of 22 bbls. In Clay Township, same county, the Murphy Oil Co. of Pennsylvania, drilled in a second test, 175 feet from the south line and 575 feet from the east line of the Stewart Brothers' farm, in the southwest quarter of Lot 13, with a flush of 25 bbls. Sand was topped at 968 feet and the oil struck at 10 feet in and then given a shot of 60 quarts of nitro. In Monroe Township, same county, the Consolidated Oil Development Co.'s second test, 1,520 feet from the south and west lines of the August Yeager farm, Section 9, proved a duster at 1,341 feet. The Gem Oil Corp. is starting a second well on the George A. Taylor farm, Section 9, same township, while in Logan Township, Willis and others are working at a test on the E. S. Wilson, Section 13.

The Ohio Oil Co.'s No. 8, in the northeast corner of the John E. Zimmerman farm, in the northeast quarter of Section 12, Washington Township, Gibson County, is reported at 3 bbls. Sand was tapped at 1,523 feet and drilled 9 feet in.

In Harrison Township, Knox County, the Murphy Oil Co. of Pennsylvania drilled No. 3 well, 400 feet from the north line and 1,500 feet from the east line of the W. E. Harrison farm, Section 19, which pumped 8 bbls. after given a shot of 40 quarts at 1,236 feet, or 12 feet in the sand.

Two important wildcat wells are due for completion that will mean much for the territory directly east from Mt. Carmel, Ill., although the tests are across the Wabash River, in Decker Township, Knox County, Indiana. The Russell Producing Co., of Cleveland, Ohio, are the owners of the two wells, one of which is on the Ballentine 515 acres, Section 16, directly south from the Stillwell Pool, of Wabash County, Illinois, and, according to Government surveys, lies on a large structure. The other well is on the Henry Decker farm, Section 34, same township, also on structure. These two wildcats are between the Wabash County, Illinois, Field and the Princeton Field of Indiana. In the same township, the Eastern Gulf Oil Co. has two wells reported under way on the Mussleman 300 acres, Section 34, and one on the Nellie M. Orr farm, Section 26. The Ballentine farm test of the Russell Co. is just across the river from the big Dolson-Dorney lands, 2½ miles south and a little east of the Stillwell Pool and about the same distance directly east from the Adams Corner Pool, 1½ miles west and 2½ miles south of the town of Orrville.

Illinois Field

The most recent sensation in the Illinois Field comes from Wabash County, where a practically new pool has been found that lies several miles to the southwest of the Stillwell Pool, which has caused so much excitement in the Allendale Field for nearly a year. The new find is some distance from production and the test was made by Henley, Lee and others in the northeast corner of the Ezra Bass 41 acres, in the north half of the south half of the southwest quarter of Section 19, Friendsville Township, Wabash County. This venture struck top of sand at 1,543 feet and at 9 feet in produced on the pump a flush of 200 bbls., making it the best well found in the county, outside of the Allendale Field for at least two years and brings forth something new for the trade to shoot at. This new well is to the west and north of the dry hole finished a few weeks ago by Langenfelder and others on the southwest corner of the J. O. Woods farm and makes the territory to the west look inviting.

The drilling in of the Bass well has caused a large amount of leasing, much of which land has been taken at high figures, and the situation is shaping for a number of early tests in the territory surrounding the good producer. Karnes and others, who recently drilled on the Verdie Jordan lease in the Allendale area, are moving their rig from that lease to the new Friendsville Field and will drill on the Christ Frick lease of 41 acres adjoining the Bass farm on the south and in the same section. Piper and others, of Flat Rock, are locating a well on the Bert Keen 35 acres, adjoining the Bass on the north. A location has been made by Miller and others on the Jabez Taylor, 1½ miles north of the Bass well for early drilling. Two or three wells are to be drilled on the Price lease, it is indicated, including wells by Joe Young, Jr. and others. Unknown parties have made a location on the Obe Woods lease, and Mack Leighty and others will drill on the Franklin school lot, east of Friendsville.

Operators from other producing areas have been attracted to the Friendsville Field even though road conditions have been bad in that section. With the clearing of the road situation, it is expected operations will get under way in earnest and still other wells will be located and drilled. The Bass well is a mile east and one-half mile south of the town of Friendsville and the residents of the active little burg are much enthused over the discovery and excitement that it creates. The Bass well has been connected to pipe line and already has a market for its oil.

Stillwell Pool

For some time transportation work of all kinds in the Stillwell Pool, of the Allendale Field, in Wabash Township, Wabash County, has been hampered or halted altogether because of bad roads. Promoters and workers are even now

(Continued on Page 94)

Kentucky-Tennessee

By Vern T. Whitney

WINCHESTER, Ky., Feb. 20.—In the Kentucky-Tennessee fields there were several good completions reported from the western portion of the Blue Grass State. In the Swope Pool, of Ohio County, the Chicago Petroleum Syndicate put its No. No. 2 Gunther & Gant on the pump and during the first 24 hours it made 130 bbls. from the Barlow sand topped at 731 feet and drilled through at 761 feet. When drilled in the well filled up within 200 feet from the top of the hole over night and was shot with 135 quarts of nitro the following day. After the casing was set the oil flowed over six inches above the casing head for considerable time. Experienced operators assert the well will prove one of the best Barlow sand wells in the Owensboro Field. It is near the Indian pipe line and will be connected to it immediately.

The Gunther-Gant tract adjoins the Colonel Powers farm on which several prolific producers were drilled by the Pennsylvania-Indiana Oil Syndicate during 1925, as well as on the Lucinda Crowe farm in the same district. The first test made on the Gunther-Gant by the Chicago Petroleum Syndicate was a duster, as was the test made by Stevenson and others on the east end of the same tract.

It is reported 200 wells are now connected on the Indian line in the Owensboro Field, consisting of Hancock, Ohio, and Daviess Counties, and that they are producing over 700 bbls. daily. The production of this field has increased very rapidly, as during the entire month of February in 1923 these same counties had but a total of 856 bbls. credited to them.

In Barren County, the Glasgow Oil & Refining Co. made a 25-bbl. strike in its No. 2 on the White farm just outside the city limits of Glasgow.

A wildcat drilled near Fairview school, 4 miles northwest of Newton, in Elliot County, by J. M. McDonald in an effort to extend the North Weir Field of Lawrence County failed to show commercial production in the Weir sand at 764 feet and was abandoned.

Week's Work

A summary of the week's work in the Kentucky-Tennessee fields shows 24 completions, 17 producers with a flush of 145 bbls., 5 dry holes and 2 gassers. Compared with the previous week, this is a decrease of 1 completion, 1 less producer, 94 bbls. less in production, 1 more dry hole and 1 less gas well. The wells were distributed by counties as follows:

	Comp.	Wells	Prd.	Dry	Gas
Barren	7	7	73	0	0
Owensboro dist.	3	1	25	2	0
Allen	3	2	8	1	0
Warren	2	2	10	0	0
Lawrence-Johnson	1	1	8	0	0
Johnson-Magoffin	1	1	8	0	0
Lee-Owsley	1	1	7	0	0
Simpson	1	1	5	0	0
Jackson	1	1	1	0	0
Floyd	1	0	0	0	1
Wayne	1	0	0	1	0
Elliott	1	0	0	1	0
Tennessee	1	0	0	0	1
Total	24	17	145	5	2
Last week	25	18	239	4	3
Difference	1	1	94	1	1

Along the State Line

There is bound to be active development along the Kentucky-Tennessee State

(Continued on Page 96)

LOOKING BACK 25 LOOKING AHEAD

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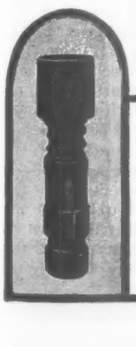

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Brown Welding and Machine Co.—Breckenridge, Texas.
Elms Bros. & Co.—Waynesburg, Pa.
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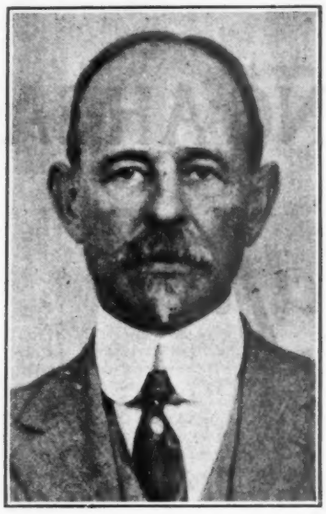
MEN KNOWN IN OILDOM



Forrest M. Towl

Forrest M. Towl, president of the Southern Group of Pipe Lines, was born at Parma, Cuyahoga County, Ohio, January 14, 1863, the son of Mr. and Mrs. Theodore M. Towl. He was graduated from Cornell University with the degree of C. E. in 1886. He married Mary E. Dean of Brooklyn, N. Y., December 18, 1888.

Mr. Towel was engaged in a survey of the pipe lines in the summer of 1879 to 1886. He was assistant engineer and later chief engineer of the National Transit Company from 1886 to 1902. From 1902 to 1903 he was manager of the pipe line department of the Pacific Coast Oil Company, now the Standard Oil Company of California. He designed and built the first long hot oil pipe line from Bakersfield to San Francisco Bay.

In 1903 Mr. Towl was made general superintendent of the trunk pipe lines controlled by the Standard Oil Company and continued in that position until 1906 when he became consulting engineer. Since 1911 he has been president of the Southern Pipe Line Company, Eureka Pipe Line Company, South West Pennsylvania Pipe Lines and Cumberland Pipe Line Company. He has had charge of the building of more than 7,000 miles of pipe line.

Mr. Towl was a member of the fuel and fuel handling subcommittee of the United States Navy and consulted with the United States Navy and the British Admiralty on a pipe line across Scotland to supply the allied navies with fuel oil. He recruited the United States Navy unit which built this 30-mile 8-inch pipe line in 60 days during 1918.

Mr. Towl was honorary lecturer on mechanical engineering at Columbia University in 1911. He is a member of the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Institute of Mining and Metallurgical Engineers, the A. A. A. S., Cornell Engineering association, Chi Psi fraternity and the Dutch Reformed Church. His homes are at Dering Harbor, N. Y., and 45 Montgomery Place, Brooklyn, N. Y.

PERSONAL PARAGRAPHS

George D. Locke of Chicago, vice president in charge of sales for the Barnsdall Oil Company, was in Tulsa the past week.

* * *

J. D. Moroney, district foreman of the Prairie Pipe Line Company at Bartlesville, Okla., was a recent visitor in Tulsa.

* * *

Leo A. Ekstrom, a former pipe line official of the Indiahoma Company, and now a resident of San Antonio, Tex., is visiting relatives in Okmulgee, Okla.

L. W. Petrie has established field headquarters at Camden, Ark., for the Shreveport office of the Roxana Petroleum Corporation.

* * *

W. K. Warren, president of the Warren Petroleum Company of Tulsa, has been confined to his home with an attack of influenza.

* * *

Charles I. O'Neill, secretary of the Okmulgee District Oil & Gas Association, visited Kansas City recently, accompanied by Mrs. O'Neill.

* * *

Walter Stalder, prominent consulting geologist of San Francisco, was in Los Angeles last week in connection with several of his drilling projects.

* * *

F. B. Vanderhoef, president of the Tide Water Oil Sales Corporation of New York, was in Los Angeles recently but has since returned to the home office.

* * *

W. P. Durkee, Jr., district manager of the General Petroleum Corporation at San Francisco, has returned to his office after a short sojourn in Los Angeles.

* * *

L. L. Leventritt of New York City, who has been a director of the Savoy Oil Company, is to move to Tulsa and be more closely associated with the company.

* * *

Philip Maverick, who has been with The Texas Company as geologist for about five years, has recently opened offices as consulting geologist at San Angelo, Tex.

* * *

Ira G. Wetherell of Independence, Kans., accompanied by Mrs. Wetherell, visited in Casper, Wyo., en route home from the American Petroleum Institute in Los Angeles.

* * *

W. E. "Billy" Andrews, veteran pipe liner of the Standard Oil Company, has been seriously ill in California during the past few weeks but an early recovery is anticipated.

* * *

A. F. Wood, sales manager of Chestnut-Smith Corporation, was called to Indiana the past week because of the death of his mother. He returned the latter part of the week.

* * *

L. E. Phillips, vice president of the Phillips Petroleum Company of Bartlesville, Okla., has completed an inspection trip through the West Texas fields and returned to Bartlesville.

* * *

Fred A. Miller of Bradford, Pa., president of the Dresser Manufacturing Company, and Mrs. Miller left last week for Palm Beach, Fla., where they will spend the remainder of the winter.

* * *

A. L. Lindsey of California has arrived in Shreveport, La., to take charge of the Argo Oil Company properties in Marion County, Arkansas. The Argo Company has operated extensively in the Wyoming fields.

* * *

G. R. "Jerry" Parks, an independent operator who has witnessed the activity in many fields from Sistersville west, is operating in the Texas Panhandle country, and made a two weeks' visit to Fort Worth.

* * *

M. R. Singleton, vice president and general manager of the Paragon Refining Company of Toledo, Ohio, spent some time in Cincinnati and Kentucky during the past week, returning to his home on Sunday.

* * *

Eugene A. Stephenson, who has served as geologist for the South Penn Oil Company, Pittsburgh, for a number of years, has recently become associated with Ralph E. Davis, consulting engineer, Pittsburgh.

* * *

Anson Henry Russell, manager of the Russell Oil Producing Company of Cleveland, Ohio, is spending a few days in the prospective field in Decker Township, Knox County, Indiana, where his company is drilling tests on the Ballentine and Decker farms, to the south across the Wabash River from the famous Allendale Field of Wabash County, Illinois.

O. D. Donnell of Findlay, Ohio, vice president of the Ohio Oil Company and the Mid-Kansas Oil & Gas Company, has been staying at the St. Anthony Hotel in San Antonio, Tex., accompanied by Mrs. Donnell.

* * *

M. T. Rathvon, general superintendent of Argo Oil Company operations in the Wyoming district, and G. L. Ferguson, field superintendent at Salt Creek, attended the annual meeting of the Argo Company in Denver.

* * *

A. B. Brooks, director of the Standard Oil Company of California, has retired from active business life after 24 years' service with the company. Mr. Brooks had been a member of the directorate since January 10, 1922.

* * *

C. A. Salisbury, retired director of the Standard Oil Company of New York, who suffered an apoplectic stroke while aboard the tanker Dixie Arrow en route from New York, is said to have shown a decided improvement during the past week.

* * *

C. J. Alworth of Alworth Brothers, who are operators in the Laredo, Tex., territory and a few months ago sold their production, left a few days ago for California on business. Alworth Brothers now make their headquarters at San Antonio.

* * *

K. B. Knowles of the Dallas, Tex., office of the Bureau of Mines, has been transferred to Laramie, Wyo., where he will be in charge of the offices and laboratory of the bureau. Mr. Knowles was at one time on the petroleum engineering staff of the Midwest Refining Company in Wyoming.

* * *

Professor Mrazek, director-general of the Geological Institute of Rumania, has returned to Bucharest from Bad Nauheim, where he has been taking a cure after suffering seriously from the overwork caused by the allotment of State oil lands, the mining law and the protracted negotiations with foreign powers concerning Rumania's debts and compensation to oil interests.

* * *

The Smith Oil & Refining Company of Rockford, Ill., is remarkable for being operated 100 per cent by one family. Charles G. Smith, the father, and E. E., Guy and Carl Smith, established the business 15 years ago. Later, another brother, Omer, joined the organization and last July, upon his graduation from Dartmouth College, Stanton Smith, son of E. E. Smith, a director, entered the firm.

* * *

Dr. E. H. Sellards, chief geologist, has been advanced to associate director of the Bureau of Economic Geology of the University of Texas. W. S. Adkins, formerly a member of the bureau staff and more recently engaged in private geologic work in Mexico, has returned as associate geologist. Dr. John T. Lonsdale, formerly of the University of Oklahoma, has been named associate geologist in the bureau.

* * *

R. D. Harshburger, a member of the Carter Oil Company field force at Salt Creek, Wyo., and C. W. Lee, connected with the gasoline absorption plant of the Carter in the same field, are leaving this week for South America. Mr. Harshburger will be in charge of the Carter warehouse at Buenos Aires, while Mr. Lee will be stationed somewhere in Peru. The opening of oil fields in South America has taken a number of well known men from the Wyoming district.

* * *

C. G. Dunkle, secretary of the Pittsburgh section of the American Chemical Society, has been appointed to a research fellowship in mining and metallurgy at the Carnegie Institute of Technology, Pittsburgh. Mr. Dunkle will continue the investigations in a "study of flame propagation in natural gas and air" that were being carried on by the late Benjamin E. Hess. The work will be conducted in cooperation with the Pittsburgh station of the United States Bureau of Mines and an advisory board of coal operators and engineers from the Pittsburgh district. H. F. Coward, principal assistant of the Safety in Mines Research Board of England, and G. W. Jones, fuels chemist of the United States Bureau of Mines, are directly in charge.

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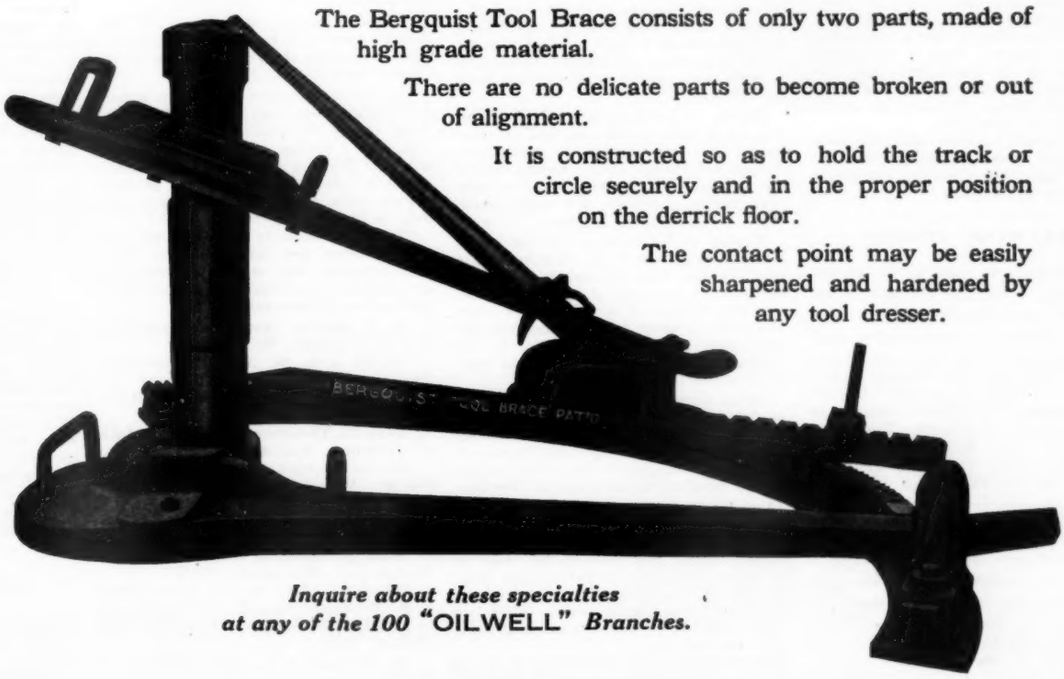

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EQUIPMENT AND SUPPLIES

SAN ANTONIO FIRM TO ERECT WAREHOUSE

SAN ANTONIO, Tex., Feb. 20.—The O. N. Jaye Corp. has been organized under the laws of Texas for the purpose of manufacturing, buying and selling well rigs, pipe and other supplies of all kinds used in the drilling of oil or water wells. The company has leased from the Missouri, Kansas & Texas Railroad a block of land in San Antonio between the railroad tracks and Simpson Street and along the San Antonio River and will erect a warehouse and machine shop there. The capitalization is $50,000.

O. N. Jaye who has been engaged in handling oil well supplies in this territory for some time, T. Alex Taylor and E. L. Jaye are the incorporators. O. N. Jaye is president, T. Alex Taylor, secretary, and E. L. Jaye, vice president. Before incorporating the late I. B. Hurd was interested with Mr. Jaye and the partnership operated in the Lytton Springs Pool in Caldwell County, the yard at Dale having later been moved to San Antonio.

BASKET CORE BARREL HAS BEEN IMPROVED

The outstanding features of the basket core barrel were described by E. Call Brown of the California Petroleum Corp., Los Angeles, in the course of a discussion of core drilling technology at a session devoted to petroleum production methods, at the 133rd meeting of the American Institute of Mining and Metallurgical Engineers in New York February 15:

The basket core barrel can be made out of scrap casing by anyone in the field. It is possible to take a core inside a 4½-inch casing. It is found useful in picking up the hard teeth that are broken from the other barrels and tools. If the teeth break off, they are easily picked up or drilled out.

A great deal of improvement has been made in core barrels during the past two or three years, but there is still plenty of room for better work.

TAKES OVER "ATERITE"

Announcement is made by the Barber Asphalt Co. of Philadelphia that it has taken over the exclusive rights to manufacture "Aterite," a noncorrosive, acid-resisting metallic alloy, from the Aterite Co., Inc., New York. The Barber Asphalt Co. is in a position to furnish "Aterite" valves, fittings and special castings to those requiring such a metal. The valves, fittings, etc., will be manufactured at the Iroquois plant of the company, located in Buffalo, N. Y.

FIRM CHANGES TITLE

The Pittsburgh Reinforced Brazing & Machine Co., Pittsburgh, Pa., manufacturer of Kerotest valves and fittings, has announced the change of its corporate title to Kerotest Manufacturing Co. This is a change of name only and does not affect the original organization in any way. The change is effective as of March 1.

MACHINES TO COLOMBIA

The California Pipe Line Machine Co. shipped three of its pipe laying machines to Cartagena, Colombia, South America, to the Andian National Corp. for the construction of 450 miles of 10-inch pipe lines that the Andian Corp. is building from the coast to the oil fields in Colombia.

EXTENSIVE DRILLING EXPECTED BY STEEL MILLS; PRICES FIRM

By B. E. V. Luty

PITTSBURGH, Pa., Feb. 22.—In the past week the steel business has given additional evidence of its ability to hang on to a high pace of operation. Production may be a trifle off from the January rate, which in all steel trade history yielded to only two months, March of 1924 and March of 1925, and so was one which it could not be expected would be fully maintained. This is the fourth time in as many years that steel production has worked up to a particularly high rate. In each of the three former cases there was a decided and in one case—1924—a very sharp decline in production. This time the circumstances prove to be different. Buyers are not stocked up as they were on the former occasions and instead of their purchases decreasing as they did the other times they are now increasing, at a slow rate it is true, but a steady pace. There is even a possibility that production after declining for a short time, say this month and next, will react upward again. In general it looks as if production will be heavy up to midsummer, and the output in the eight months from last November to next June inclusive may make a new record for eight consecutive months.

Steel prices in general are steady and are not engaged in declining. Two exceptions are of lines that advanced late in the old year, and they have been losing something, part of the advance in the case of sheets, all in the case of plates. Sheets, as reported last week, have weakened by say $2 a ton, which really means that they have failed to establish all the advance aimed at in the several advances of October and November. This week plates, which have been weakening a trifle of late, become quotable at $2 a ton decline, or at 1.80 to 1.90 cents, which is where they were last October.

Buying of merchant pipe has been increasing a trifle in the past two or three weeks, but not enough to make any decided difference. Heavy buying awaits the progress of the season, bringing more consumption. Jobbers are quite indisposed to stock up in advance.

Buying of oil country tubular goods has continued increasing. The volume is much heavier than November, December, or early January but it is still well below the average of a fairly good year. With the present pace of improvement continued, in another month or so the buying will be distinctly heavy and equal to or above the average.

While oil production has not continued declining to the extent it was in January, pipe mills regard any rate below 2,000,000 bbls. daily as a sign that there will be heavy drilling, and they point to last week's advance of 25 cents in Pennsylvania oil as the precursor of another set of oil advances in various fields.

There has been some relatively small lot buying of line pipe in the west in the past week, but no particularly large orders have been placed. All told, however, mills have more than a little line pipe business on books, particularly for this time of year.

Operation at the pipe mills is at 65 to 70 per cent, representing a slight increase over the rate in December. The increase in shipments since December is considerably greater than the increase in production, as in December pipe mills were still replenishing stocks, while at present it seems they are shipping as much as they are producing.

Prices of merchant pipe, oil country goods general'y, and line pipe in small lots, are all fully maintained by mills, the market being regarded as very firm.

With the settlement of the anthracite suspension the Connellsville coke market promptly broke. Not only did buying practically cease, but there was much canceling of orders, and for several days shippers were busy trying to report car numbers to forestall cancellation. The top point on run of oven coke had been $12.50, the market now being about $5.50, while yard crushed had gone in a few cases at $14.50, being now about $6.50. Pig iron, long stagnant, is likely soon to show more activity.

TAYLOR INSTRUMENT CO. HAS 75TH ANNIVERSARY

The "Tycos," house organ of the Taylor Instrument Co. of Rochester, N. Y., carries the following item apropos of the celebration of the company's seventy-fifth anniversary:

"We take justifiable pride in announcing the seventy-fifth anniversary of this organization, and of its growth during all those years (in Rochester, N. Y., among the varied industries, where quality predominates) to its present importance in the industrial world.

"We have before us an inventory taken 74 years ago showing a total of $919, of which $600 was "good will, or knowledge of the business," making the actual inventory of physical assets $319.

"This was a small beginning, but those early founders of the business had a vision and ideals which we are trying to perpetuate.

"The vision was one of sure and certain growth, and the ideals were quality and service.

"Without egotism, we cannot but feel that we have to a considerable extent at least carried out the vision and the ideals handed down to us.

"In the development of modern industry we have seen more and more the demand on us for quality in our production, and a service in making the world a better place in which to live, so that we have come to look upon our product as not mere merchandise but as a real help to mankind.

"In going back to the 50's we find great interest and satisfaction in locating customers with whom we have had an unbroken connection since that time, just a few of these being—

"S. O. Barnum (now S. O. Barnum & Son Co.), Buffalo, N. Y.

"W. H. & G. W. Allen, Philadelphia, Pa.

"J. M. Maris & Co. (now J. M. Maris Co.), Philadelphia, Pa.

"John L. Thompson & Co. (now John L. Thompson, Sons & Co.), Troy, N. Y.

"George Worthington & Co. (now The George Worthington Co.), Cleveland, Ohio.

"William Bingham & Co. (now The W. Bingham Co.), Cleveland, Ohio.

"John B. Varick & Co. (now John B. Varick Co.), Manchester, N. H.

"Shapleigh, Day & Co. (now Shapleigh Hardware Co.), St. Louis, Mo.

L. Black & Co. (now L. Black Co.), Detroit, Mich.

"C. Eberbach & Co. (now Eberbach & Son Co.), Ann Arbor, Mich.

"And many others, too numerous to mention.

"To these valued customers of such long standing we extend greetings and felicitations on their many years of successful business; to those who have been our customers in the intervening years we owe much to their patronage and helpful suggestions, and to our thousands of present-day customers, and those in the years to come, we are sincere in our desire to serve them well and to merit their continued regard and good will."

HIGH PRESSURE FLOAT IS MADE OF ALUMINUM

Arthur Harris & Co., Chicago, are announcing to the engineering field a new float for high pressure. In certain engineering installations the float is used on liquids lighter than water that are under high pressures. This is especially true in oil refining. The high pressure float, therefore, must be of strong construction and light in weight. It is claimed that under certain conditions copper is too heavy a metal to give both lightness and the necessary strength, and that the problem has been solved by the use of aluminum. The new float is strictly one-piece and is heavily nickel plated to prevent corrosion and give it a smooth surface. Tests have proven that the float may be used for pressures up to 1,500 pounds per square inch.

OFFICERS ARE ELECTED

The Oil & Gas Well Supply Traffic Association has elected the following officers for the coming year: J. F. Ryan, traffic manager, National Supply Co., Toledo, Ohio, President; E. W. Wilson, traffic manager, Frick-Reid Supply Co., Tulsa, Okla., first vice president; P. G. Snyder, traffic manager, Oil Well Supply Co., Pittsburgh, Pa., second vice president; J. H. Kriebel, traffic manager, Frick-Lindsay Co., Pittsburgh, Pa., treasurer, and T. L. Moriarity, traffic manager, Continental Supply Co., St. Louis, secretary. The following companies were admitted to membership: Parkersburg Rig & Reel Co., Parkersburg, W. Va., V. E. Millsark, traffic manager; Larkin Packer Co., St. Louis, Mo., J. J. Larkin, president; C. N. Hough Manufacturing Co., Franklin, Pa., O. J. Thompson, manager; O. C. S. Manufacturing Co., Coffeyville, Kans., D. C. Meyers, secretary; Bessemer Gas Engine Co., Grove City, Pa., C. F. Fithian, sales manager; Alton Foundry & Machine Co., Lancaster, Ohio, George Alton, president; Hughes Tool Co., Houston, Tex., S. M. Brown, sales manager; Republic Supply Co., Houston, Tex., R. B. Cushman, traffic manager, and Titusville Forge Co., Titusville, Pa. The next regular meeting will be held in Pittsburgh, Pa., April 12 and 13.

FORM ASSOCIATION

The Widdell Engineering Co., consulting engineers and general contractors, Kansas City, Mo., and Arthur G. McKee & Co., contracting engineers, Cleveland, Ohio, have formed an association for the conduct of engineering and contracting in connection with the oil refining business, and including the design and construction of complete refinery equipment, pipe stills, fractionating towers, treating plants, and similar equipment. The corporate entities and structures of both companies will be maintained as at present.

BOOK ON MOTOR FUEL

"Automobile Gasoline—Its Dangers and Tests," by Augustus H. Gill, S.B.Ph.D., Professor of Technical Analysis at the Massachusetts Institute of Technology, published by J. B. Lippincott Co., is of interest both to the automobile owners and the refiners and distributors of motor fuels. It gives the automobile owner information about gasoline, its properties, peculiarities and dangers. There are also considerable data for the chemist covering tests to be applied in determining gasoline values. The author discusses gasoline improvers and antiknock compounds, gasoline explosions, strange gasoline accidents, gasoline fires and gasoline substitutes.

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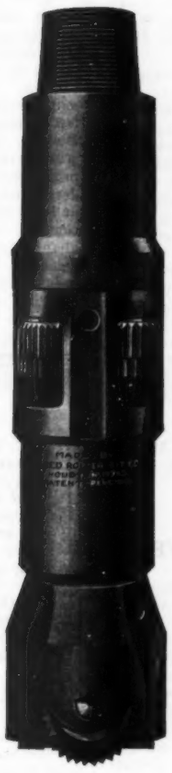

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Reed Rock Bits

NATURAL GAS DEVELOPMENTS

CALIFORNIA COMPANIES RE-ELECT DIRECTORS

LOS ANGELES, Calif., Feb. 20.—At the annual stockholders' meeting of the Southern California Gas Co. the following directors were reelected: W. G. Kerckhoff, A. B. Macbeth, A. C. Balch, Ben R. Meyer, L. M. Farnham, W. B. Holmes, Los Angeles, and W. A. Haas, San Francisco.

The board reelected the following officers: W. G. Kerckhoff, president; A. C. Balch, vice president; A. B. Macbeth, vice president and general manager; L. M. Farnham, vice president and secretary; A. E. Peat, comptroller and treasurer, and W. E. Robins, auditor.

Stockholders of the Midway Gas Co., controlled by the same interests, reelected the following directors: A. C. Balch, W. G. Kerckhoff, A. B. Macbeth, Ben R. Meyer, L. M. Farnham, A. E. Peat, W. B. Holmes, Los Angeles, and S. W. Coleman and Ferdinand Reis, Jr., San Francisco. The directors reelected the following officers: A. C. Balch, president; A. B. Macbeth, vice president and general manager; L. M. Farnham, vice president and secretary, and Ben R. Meyer, treasurer.

The Southern California Gas Co. has entered into a contract with the Midway Gas Co., whereby it has first call for its requirements of natural gas.

SAN ANTONIO RATES CAUSE CONTROVERSY

SAN ANTONIO, Tex., Feb. 20.—New natural gas rates are to be installed in San Antonio, Tex. The Public Service Co., which gets its supply of natural gas from the Southern Gas Co. which pipes it from McMullen, Live Oak and Duval Counties, has announced tentative rates, a reduction from the present rates. Mayor John Tobin has stated that the city would not accept the rates, claiming they are too high. In case of dispute and failure to agree the law provides the rates shall be fixed by the State Railroad Commission.

The present rates are $1.05 per 1,000 feet to domestic consumers using up to 10,000 feet per month with a 10 per cent discount on bills. The new rates are a sliding scale and for consumers using less than 3,000 feet per month there is no change from the old rates. For those using over 3,000 feet up to 50,000 feet the new rate will be 86.5 cents, and beyond 50,000 feet the new rates would be 77.5 cents.

The new rates were proposed to the city by the Public Service Corp. and rejected by the City Commission which announced it would offer a proposed schedule of rates in a few days.

NATCHITOCHES GAS CO. PLANS 20-MILE LINE

SHREVEPORT, La., Feb. 20.—The Natchitoches Gas Co. has asked for bids for the laying of a 6-inch line 20 miles long from the Harmon gas field to Natchitoches, and for the installation of a natural gas distributing system at that city.

George B. Sipe of Shreveport is the engineer in charge of the company's gas operations, and plans and specifications may be obtained from him. The original intention was to ask for bids for both units of the work, but it was thought advisable to separate the line construction from the distributing system.

The Natchitoches Gas Co. has the franchise for the distribution of gas at Natchitoches and expects to have its line completed and distribute gas at that city some time in June. The Natchitoches Gas Co. is owned and controlled by Tooke & Reynolds of Arcadia, La.

HEAT PROCESS AIDS PRODUCTION IN OLD OIL AND GAS DISTRICTS

By Dr. J. B. Garner, and George B. Leyden

For many years oil producers, geologists and governmental experts have believed that the methods of oil production in use have not been conducive to the recovery from the producing sands of all of the crude petroleum contained therein. There have been various estimates made of the amount of oil thus left underground. It is the opinion of the Bureau of Mines experts, who have studied the situation, that "by the usual production methods, much oil is left underground, the general opinion being that at least 50 per cent of the oil in the field remains unrecovered when the field is abandoned as exhausted." Unprecedented demands have been made upon the oil industry for various refined products and this has been the occasion for oil producers to put forth great efforts to bring above ground an amount of oil adequate for the market requirements in these refined products. New fields have been located and the supply has more than kept pace with the demand. Crude petroleum and the products refined from it have become so economically important that leaders in the petroleum industry have felt justified in making intensive efforts to wrest from the oil-bearing sands of old producing and abandoned fields the residual oil which they contain.

This problem has been attacked from many viewpoints. In some cases mining has been resorted to, and in other cases air, natural gas, water and salt solutions have been pumped under pressure into the oil bearing sands. Chemicals have been used on account of their solvent and oxidizing qualities and various electrical devices for heating the producing sands have been utilized. The authors have made a careful study of the various prior methods for increasing oil and gas production in the old producing and abandoned fields. Technical and patent literatures have been consulted to learn if there were in existence any methods which had been practiced with any degree of success, and as a direct result of this study and investigation, have concluded that the prior methods were inadequate to solve the problem of increasing oil and gas production. For several years, experimental and field work has been conducted and as a direct result the authors' process of heat treatment of wells has been evolved and developed. Ample time has been taken to test the merits of the process on a number of wells and to collect data on production since the heat treatment of these wells.

Methods Described

The method briefly is that of maintaining a gas fire at the bottom of the well for any desired period of time to effect such physical and chemical changes in the oil producing sand as will result in increased oil and gas production. The gas fire as maintained at the producing sand is always under perfect control. The intensity of the heat resulting from the fire may be great or little depending upon the requirements of the particular sand which is being heated. In one instance a temperature as high as 3,300 degrees Fahrenheit has been maintained in the producing sand, but in general practice the authors have been able to hold the temperature in the neighborhood of 2,000 to 2,300 degrees Fahrenheit.

The effect of heat treatment is not alone in the melting of "paraffin" and inorganic salts in the pores of the producing sand. The effect of heat treatment according to this process is best understood by the citation of experience gained by heat treating an exhausted oil well in the West Virginia fields. Prior to the application of the heat treatment, the well in question had had a heavy shot of nitroglycerin and had been thoroughly steamed yet there was no increase in production. The well was on the point of being abandoned when heat treatment was applied. The gas fire was maintained in the producing sand for a period of four hours and since July 1, 1924, this well has produced 1,234 bbls. of oil or an average monthly production of approximately 72 bbls.

Shooting and Steaming

It is well known that the effect of shooting is irregular, sometimes the sand is fused; other times the sand is fractured, the hole caving and enlarging as

(Continued on Page 90)

OFFERED FOR LICENSE TO THE INDUSTRY

The accompanying article describes the Garner-Leyden heat treatment process to increase oil and gas production in old producing and abandoned fields and was written especially for The Oil and Gas Journal. Dr. Garner, who is director of research for the Hope Natural Gas Co., at Pittsburgh, Pa., has devoted a great deal of attention to the process, and George B. Leyden, chemical engineer for the same company, is responsible for the practical working out of the process.

The Standard Development Co., the patent-holding subsidiary of the Standard Oil Co. (New Jersey), is owner of the patent rights on this process and is offering the process for license to the industry generally. It has been estimated that the actual cost of the application of this method to an oil well is approximately $250.

Showing lines, connections, gauges, etc., leading from the air and gas compressors to well to be treated.

ALBERTA OIL AND GAS ASSOCIATION FORMED

CHATHAM, Ont., Feb. 20.—The first annual meeting of the Central Alberta Oil & Gas Association was held at Edmonton when the final organization was perfected. W. R. Howson of Edmonton was elected president, J. O. Williams secretary and N. C. Legge treasurer. The following were elected members of the executive committee: E. T. Bishop, W. R. Howson, T. J. Sugars, R. W. Lett, John Maloney, A. M. Mowat, John Kenwood, Alderman Will Werner, Sam Smith, R. W. Jones, J. H. Ogilvie, John Mercer, Dr. E. W. Allin, Howard Stutchbury, Doctor Tatham, all of Edmonton; Mayor Cork and M. L. Forster of Wainwright; H. W. Lowe of Irma and H. B. Hanson of Wetaskiwin. An enrollment of 82 members was reported, and it is expected 40 more will be added before the end of February.

TO USE NATURAL GAS FROM MONROE FIELD

SHREVEPORT, La., Feb. 20.—The City Council of Lake Providence, La., has granted a franchise to the Tri-State Public Service Corp. of Monroe to furnish Lake Providence with natural gas from the Monroe gas field. The distance is approximately 40 miles and the estimated cost of the line is $350,000. Work on laying the mains is to start within 90 days from acceptance of the contract.

The franchise runs for 25 years and provides that the rate for domestic consumption shall not exceed 85 cents per 1,000 feet; for public buildings not to exceed 65 cents and for factories not to exceed 25 cents per 1,000 feet, with the right reserved to make special low rates for commercial purposes. Several smaller towns will be served along the route of the new line.

ALBERTA GAS CONFERENCE

CHATHAM, Ont., Feb. 20.—A conference has been held at Edmonton between representatives of the Dominion Government and the Alberta Provincial Government to discuss the handling of the petroleum and natural gas development in Alberta, in connection with the proposed transfer to the province of the natural resources heretofore administered by the Dominion Government. Resident representatives of the Dominion Geological Survey and Dr. J. A. Allan, professor of geology at the University of Alberta, participated.

FIVE NEW SALT DOMES DISCOVERED BY GEOPHYSICAL METHODS IN 1925

By L. H. Freedman*

The past year marked an important chapter in the history of salt dome development and establishment of petroleum reserves. With exploration methods more fully standardized and organizations built up, the major oil companies settled down to the long and expensive task of the exploration of the entire Gulf Coastal area of Texas and Louisiana. Several new salt domes have been discovered by use of the recently introduced geophysical methods of geological investigation. When consideration is given to the fact that these discoveries are due entirely to the efficiency of the scientific methods and in practically no instance was there any important physical evidence of a dome such as elevation, gas, oil seeps, paraffin dirt, etc., it is readily apparent that these new methods are performing valiant service in the setting up of petroleum reserves. It is quite likely that many of these domes would not have been discovered for many decades, if ever found, by the old methods of exploration. With all the clearly indicated salt domes discovered the task of uncovering the remaining salines will become increasingly difficult and will require ever increasing diligence.

The Fannette Salt Dome was the first dome discovered in 1925, being found by the Gulf Production Co. and its identity established when the No. 1 E. Thomas and others picked up the cap rock at 859 feet, on June 20, 1925. The two subsequent wells drilled on this property went into dome material. The Gulf Production Co.'s No. 4 Thomas and others, was the first well drilled off the dome and was abandoned at a depth of 4,744 feet as a dry hole. This salt dome is in Jefferson County and is 3 or 4 miles south of Fannette. It was found by the aid of the seismograph.

On July 17, 1925, the Gulf Production Co. proved the presence of the Hawkinsville Salt Dome when its No. 1 J. H. Craig, drilled into cap rock at a depth of 200 feet. This dome was prognosticated by the seismograph. The second well drilled on this dome was the Gulf Production Co.'s No. 2 Craig, which was dry and abandoned at a depth of 4,142 feet. The Hawkinsville Salt Dome is situated near Hawkinsville, Matagorda County.

Operations in Louisiana

The joint prospect of the Sandard Oil Co. of Louisiana and the Gulf Production Co. about 5 miles south of Starks, Calcasieu Parish, Louisiana, was tested by means of the seismograph and indicated the presence of a salt dome which was later proven when the Standard Oil Co. of Louisiana drilled the first well on the land of the Industrial Lumber Co. This test, on November 5, 1925, drilled into the cap rock at 1,280 feet. The Gulf Production Co. also drilled into the cap rock on this dome. Both wells showed some oil in the cap rock, but upon being tested produced salt and sulphur water.

The Roxanan Petroleum Corp. made its initial find in the Gulf Coastal area when No. 1 Allen picked up gypsum at 1,213 feet, on December 30, 1925, proving up the Allen Dome. The Allen Dome is in Matagorda County, about 10 miles east of Hawkinsville. This dome was found by the use of the torsion balance.

The Roxana Petroleum Corp. also appears to have another salt dome discovered about 5 miles north of Allen Dome, known as the Clemmons Dome but to date has not drilled the dome, its first well being located to make a deep offside test. The torsion balance has indicated the presence of a salt dome here.

Since 1901, when Spindletop was discovered, no one year has yielded so large a number of new domes as 1925, when five new domes were found. In 1902, three new domes were found, and in 1917 three new domes were also found. In 1925, five domes were discovered under more difficult conditions and with no aid from surface indications.

Despite the extensive prospecting carried on for new domes, the old domes also received considerable attention. The South Liberty Salt Dome, Liberty County, discovered in 1904, had been practically non-productive except for small shallow production since its discovery, until January 1, 1925, when the Winifree Oil Co. brought in No. 1 Pickett, for about 750 bbls. initial production from a sand 3,419-80 feet. As the land was leased in small tracts on all sides of the discovery well, a frenzied drilling campaign was inaugurated and approximately 196 wells were drilled in the scramble for production. Of these wells approximately 158 were productive and their combined initial production was about 130,300 bbls. All told, South Liberty yielded about 4,500,000 bbls. of oil during the year from a productive area of approximately 105 acres. This pool is still making about 9,500 bbls. daily, although there has been practically no drilling there for four or five months.

Coastal Domes

The High Island Salt Dome, Galveston County, looked quite promising in May, when the Gulf Production Co. brought in No. 2 Smith, for about 1,500 bbls. from a depth of 3,295 feet. This well was brought in without screen in the hole but nevertheless held its production for many months. However, offsets on both the east and west proved failures and interest in this area has somewhat subsided.

The Pierce Junction Salt Dome, Harris County, came into the limelight when the Rio Bravo Oil Co. completed No. 1 Settegast, on September 10, 1925, for 3,000 bbls. from a depth of 3,875 feet. Its second well also made about 3,000 bbls. from 3,892 feet. This is the first production on the west side of this dome. Pierce Junction has been a bountiful though erratic producer on the east side of the dome and some production has also been developed on the north side.

Old Domes Far From Done

Two of the oldest and most prolific of the domes, the Batson and Spindletop Salt Domes which have already made over 32,000,000 and 48,000,000 bbls. of oil respectively, again showed they were far from being exhausted. At Batson the Kirby Petroleum Co.-Capital Oil Co.'s No. 3 Hodges, got away making approximately 10,000 bbls. of oil from a depth of 3,449 feet on October 28, 1925. The Young-Lee No. 2 McFadden, on the south flank of Spindletop again turned the eyes of the oil world to Spindletop by making 700 bbls. from a depth of 2,588 feet.

The Texas Co.'s No. 3 Taylor, on the south side of the Boling Dome, Wharton County, brought in on December 18, 1925, was probably the most important discovery well of the year as it was the first production on the dome. Several small shallow wells were made in the cap rock previously, but The Texas Co. well making approximately 4,000 bbls. of oil daily started an active leasing campaign by all of the major operators. A number of other wells are being started and another well or two will see the beginning of another boom drilling campaign.

Four days after Boling came in the Humble Oil & Refining Co. made a well of No. 4 Walsh, from the Piedras Pintas Salt Dome, Duval County, at 5,626 feet, good for 1,500 bbls. of oil. The oil tested 43 degrees Baume gravity and contained fully 75 per cent gasoline and kerosene, an unusual grade from a salt dome. Piedras Pintas is fully 150 miles from the nearest salt dome production, and it makes that territory south along the

(Continued on Page 140)

*Before Petroleum division, A. I. M. E. annual meeting, New York.

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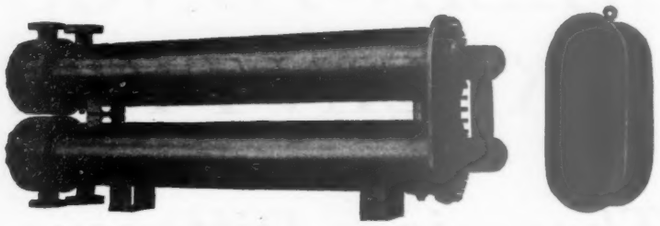

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TERRITORY OPENED IN OKLAHOMA AND KANSAS DURING THE PAST YEAR

By Burr McWhirt*

No productive wildcat wells were completed in Oklahoma in January, 1925, although wildcatting was becoming active because of the rising price of crude oil. In February, the Eagle Picher Lead Co. drilled in No. 1 Wilson, NE NW NW of Section 33-13-12, Okmulgee County. The Dutcher sand was found at from 2,445-58 feet on February 7, and the well made 315 bbls. This developed into a small pool.

On February 21, Grant and others drilled in No. 1 Sims, in Section 2-2n-5w, Stephens County, getting oil in a sand from 1,252-60 feet. The area is now known as the Knox Pool and was producing 6,000 bbls. a month at the end of the year. It has been developed slowly, and probably will not be a pool of large proportions.

On February 28, the Dixie Oil Co. drilled in No. 1 Irvine, in the SE of Section 18-8-10, making 525 bbls. of oil from 14 feet of sand, at 3,340-54 feet. This was the discovery well in the Yeager Pool. Twelve wells had been completed by the end of the year and were producing about 750 bbls. per day.

In March, the Simms Oil Co. opened a small Wilcox Pool with No. 1-A John Rentie, in the SW cor. SE SE, Section 31-12-12, Okmulgee County. The sand was found at 3,288-95 feet, and the well had an initial production of 630 bbls.

In March, the Bu-Vi-Bar Oil Co. encountered a sand at 1,902-12 feet, in No. 1 Sans, C SW SW, Section 15-21-2w, 6 miles west of Perry, in Noble County. The oil is 41 gravity. Development to the end of the year was slow and disappointing. Two small oil wells and three gas wells were completed.

In April, the Bement Oil Co. drilled in No. 1 Box, 6 miles north of Pawnee, SE cor. SW SE, Section 30-23-5. The well topped the Peru sand at 2,762 feet and started flowing by heads every 20 minutes. The well gauged a maximum of 765 bbls. per day, one week after the oil was found. Trouble was had in properly completing this well, and it was reported down to 10 bbls. a day in November. No other wells had been completed to the sand to date. The area has been disappointing.

In April, the Deep Rock Oil Co. (Shaffer Oil & Refining Co.) brought in an oil well in No. 1 Goodna, in the SE cor. SW NE, Section 23-18-3e, in Payne County. This started off as a gas well making 70,000,000 feet. Three weeks later oil showed up. The sand was topped at 4,242 feet, drilled to 4,318 feet, and then plugged back to 4,316 feet. This well is exceptional in that the gravity of the oil is 52 degrees Baume; the highest ever found in Oklahoma. Nine wells had been completed in the pool by the end of the year, making 71,500 bbls. a month.

Garber Field

In April, the Sinclair Oil & Gas Co. deepened No. 25 Belveal, in the northeast corner of Section 24-22-4w, in the old Garber Field, and discovered a deep pay sand at from 4,377-90 feet. The well gauged 2,361 bbls. of 42.7 degrees Baume gravity oil for the first 24 hours. This discovery of a new deep sand production stimulated a deep drilling campaign that culminated in a peak daily production for the Garber Pool of 72,662 bbls., on November 22, and a peak for the month of November of 1,825,000 bbls. This Garber deep sand production was the biggest and most spectacular development in Oklahoma during the year. For some months it threatened a flood of oil that operators feared would break the market. Water began to show in the wells in quantity by the middle of September, and by the end of the year the deep sand wells were producing as much water as oil. The deep sand wells declined rapidly after the peak and were down to 30,000 bbls. daily, by the end of the year.

In May, the Devonian Oil Co. drilled No. 2 Badger into the Wilcox sand at from 2,697-2,710 feet, and obtained a well that made 140 bbls. initial production. The well is CWL SW SW, Section 7-15-13, Okmulgee County. Seventeen Wilcox sand wells were producing in this pool by the end of the year.

In May, the Olean Petroleum Co., in SE SE SW, Section 14-15-12, Okmulgee County, drilled No. 2 Hogan into the Wilcox sand at from 2,621-38 feet, and got a 400-bbl. well. This opened a small Wilcox Pool that had 11 wells producing at the end of the year.

On May 21, the Herbert Oil Co. drilled in the discovery well of the Braman Townsite, or South Braman Pool. The well is in the SW cor. SE SW, Section 5-28-1w. The well topped the sand at 2,365 feet, and had an initial production of 425 bbls. This well was deepened gradually to 2,386 feet, at which depth it produced its maximum of 5,631 bbls. of oil on August 9.

Discovered by Core Drilling

The structure was discovered by core drilling. Wells offsetting the Herbert No. 1 to the west and southwest got the sand low, structurally, and soon went to water. The pool is not yet defined to the north, east and south. At the end of the year, there were 17 wells in the pool with about 4,000 bbls. per day production.

In June, the Gypsy Oil Co. drilled in No. 1 Proctor, SW cor. NE, Section 35-8-8, which opened the Gypsy or Holdenville Pool. The sand was encountered at from 3,256-98 feet, and made 1,822 bbls., and 12,000,000 feet of gas, initial production. The pool has been developed slowly and has been somewhat disappointing. At the close of the year there were 12 wells in the pool, with a daily production of 240 bbls. Dry holes have marked the limits of the pool to the south, but there is still a possibility of an extension to the north.

In June, the Mid-Kansas Oil & Gas Co. drilled in a Wilcox sand well in No. 1 McCullough, in the NE SW, Section 4-23-5, Pawnee County. The sand was found at from 3,467-83 feet, and the well had an initial production of 360 bbls. The pool has been a disappointment so far. The offset to the east was dry to 3,688 feet. Four dry holes have been drilled to date to the east, south and southwest. Two other producers have been drilled to the west.

In August, the Roxana Petroleum Corp. opened a small Wilcox sand pool with No. 1 Georgia Scott, CNL NW SE, Section 15-13-14, Okmulgee County. The sand was penetrated from 2,472-76 feet, and the well made a maximum of 90 bbls. per day. Six wells have been drilled to the end of the year. Later wells have come in at a better rate than the discovery well; one as high as 400 bbls. Although the extent of the pool is not yet known, its area, like other Wilcox pools will probably be small. The discovery may be classed as an important and profitable one.

In November, the Olean Petroleum Co. drilled in No. 1 Bolton, NW NW, Section 24-19-4, Payne County. The well came in for 1,100 bbls. in sand from 3,714-17 feet in the Wilcox series, or possibly in the Mississippi line. Five wells had been drilled around this discovery by the close of the year.

Fuhrman Pool

In November, the Fuhrman Petroleum Co. and the Transcontinental Oil Co. opened what appears to be a good pool in Hughes County, with No. 1 Harjo, NE cor. NW SW, Section 26-9-9 Hughes County. The Papoose sand was found at from 3,360-70 feet, and the well started flowing at the rate of 25 bbls. an hour. Production gradually increased to 51

(Continued on Page 142)

*Geologist and Valuation Engineer, before Petroleum Division, A. I. M. E. annual meeting, New York. Published by permission of Chief Geologist, Roxana Petroleum Corp.

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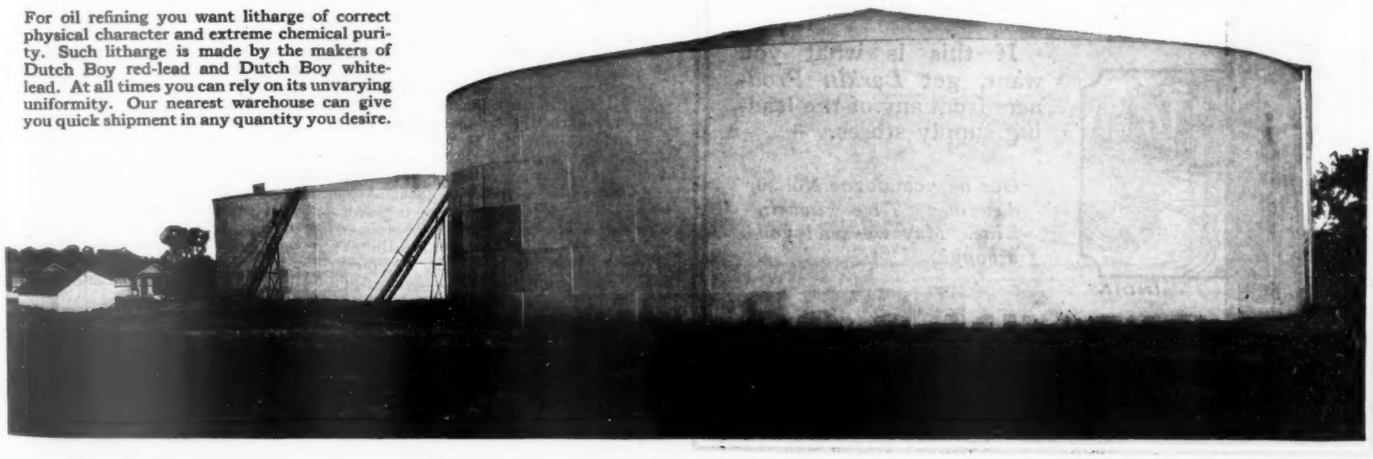

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PROSPECTS FOR 1926 PRODUCTION OUTLINED BY F. JULIUS FOHS

By F. Julius Fohs*

Chairman, Petroleum Division, A.I.M.E.

A comparative balance sheet for 1924 and 1925 follows:

	1925	1924
Production	763,000,000	714,000,000
Imports	78,268,000	77,776,000
Total supply	841,268,000	791,776,000
Indicated Domestic Exports	106,890,000	111,000,000
Consumption	742,651,000	748,882,000
Total demand	849,541,000	859,882,000
Stocks on hand Dec. 31	538,730,000	505,593,000

These figures show an increase of 49,000,000 bbls. in production and little change in oil imported; 6,000,000 bbls. less apparent domestic consumption but actually greater utility in consumption, due to increased gasoline production by cracking, and 4,000,000 bbls. less crude and refined oil exported in 1925 than 1924, representing a total apparent decreased demand of 10,340,000 bbls. Stated another way, this means further diversion of fuel oil for cracking.

The excess of demand over supply in 1925 was 4,440,000 bbls. The increase of stocks over those at the close of 1924 was 33,000,000 bbls. Of the stocks on hand at the close of 1925, about 82,000,000 bbls. in California are not refinable. The total production, as given for 1925 by the United States Geological Survey, is 755,852,000 bbls., while the figures I have used are approximate gross production from various sources, partly The Oil & Gas Journal, partly A. P. I. figures. Consumption and stocks are A. P. I. figures. Imports and exports are in 42-gallon barrels, based on United States Department of Commerce figures.

In 1926 there is a fair probability due to the further recovery of Europe that there will be an increased demand for American oil from foreign sources.

The outlook for United States production in 1926, by districts, may be summed up as follows:

1. Likely to increase production: Gulf Coast, Texas outside of Gulf Coast.

2. Just maintain present production or decline somewhat. California and Appalachian.

3. Apt to decline: Mississippi Valley, Rocky Mountain, Kansas-Oklahoma.

Imports From Mexico and South America

Imports from Mexico, Venezuela, Colombia and Peru are factors of increasing importance to the oil industry of this country. The maximum production of these countries for 1926 may be estimated as follows:

Mexico	100,000,000
Venezuela	30,000,000
Colombia	3,500,000
Peru	7,500,000
Argentine	6,600,000
Trinidad	5,000,000
Total	152,600,000

Colombia will not have its pipe line ready before June 1. Peru produces, normally, about two-thirds of the amount stated and will not, it is probable, exceed it until such time as western Canada and California need it. As American production declines, these States, especially Venezuela, and possibly Colombia, will be factors of great importance in meeting our demand. It would not be surprising if, by 1930, we should actually welcome these imports.

If these States produce 152,600,000 and use, perhaps, 30,000,000 bbls., it will leave 122,600,000 bbls. for export; but part of this will go, as previously, to Europe and elsewhere. The estimated decline in Mexican production for 1926, of 14,000,000 bbls., will just about offset the expected production increase in South America; hence there is apt to be no material increase of imports into the United States in 1926 and we shall, therefore, have to make up the production deficit for 1926 from the stocks on hand—a salient thing for the industry.

Major Pools Reaching Peak

Approximately 400,000,000 bbls., or 52 per cent, of the 1925 production came from 27 pools, reaching the peak of their production within the past three years, and eight of these 27 reached their peak in 1925.

It is probably safe to say that production from these pools will decline at least one-third in 1926, since not to exceed four of them have possibilities for extensions or increased deep sand production during the year.

Improved Production Methods

If we assume that improved production methods were effective in two-thirds of the recent major pools during 1925, it is believed a conservative estimate of their effect will be had. On this basis, in excess of 106,000,000 bbls. (25 per cent of such major pool production and 14 per cent of the total production of the country for 1925) may be ascribed to such methods. To be sure, this is only a rough guess.

Actually, such methods were also used in the case of new small pools as the several pools of Archer County, Texas, and new small Wilcox pools of Oklahoma, as well as in the resuscitation of wells in old pools; so it is probably safe to say that one-fifth of the production for the year may be attributed to these methods.

In general, the effect of these methods is to cause a higher immediate and cheaper production from new wells and earlier exhaustion of bonanza oil, with possibly greater ultimate production but uncertain conditions for the later unrecovered oil.

California

Producing 20,000,000 bbls. more than the Oklahoma-Kansas fields and 81,000,000 bbls. in excess of Texas production, California, with 231,750,000 bbls., easily held front rank and bids fair to hold this rank during 1926 and possibly 1927. During 1928, Oklahoma-Kansas or California may hold first rank and it will probably be 1930 before Texas reaches this position, due to increased Gulf Coast salt dome production. In 1923, Huntington Beach, Santa Fe Springs and Long Beach; in 1924, Dominguez and deeper production in Richfield and elsewhere; and in 1925, the new Inglewood Field, the deep sand of Ventura Avenue and the northwest extension of Long Beach, created a cumulative flush production exceeding anything oil fields have yet known. Of these pools, only one—the Ventura deep sand—was outside the Los Angeles Basin. The actual high-powered producing area of these California pools covered about 15,000 acres. This compares with about 10,000 acres of the Wilcox or deep sand horizons of Oklahoma-Kansas. The former has hundreds of feet of pay sand, the latter, from a few to 100 feet, and, likewise, the former has thousands of feet of source material while the latter has perhaps 100 feet, of which 40 feet only is comparable to the California shales. The significance of these figures is chiefly that California production from these rich pools should yield much oil over a period of years.

The most threatening deep sand area remaining is that of the Inglewood Field, and it is hoped that the three companies controlling it will not open this horizon during 1926.

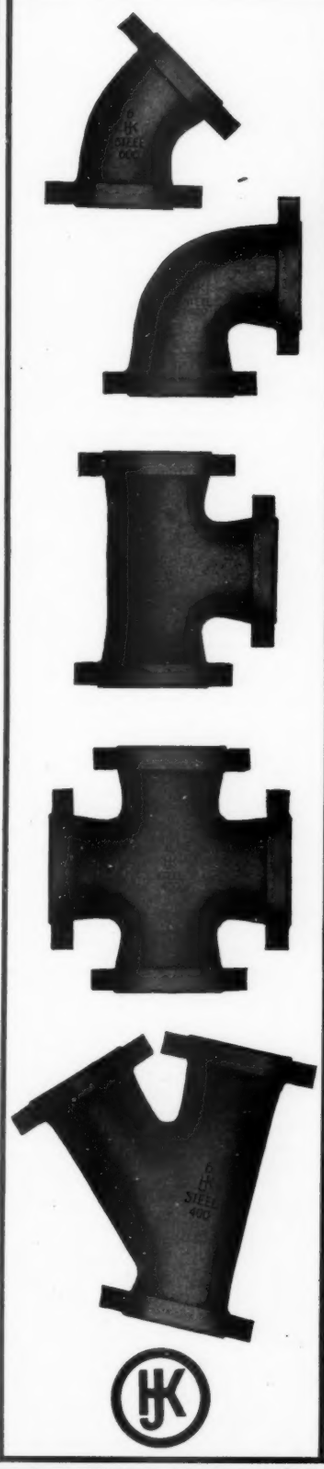
Possibilities of new worthwhile pools in the Los Angeles Basin are very limited. Two or three may occur, but the outlook for more than one additional is poor. In the San Joaquin Valley, further extension of known pools, some deeper drilling, and even some new pools are possible with continued exploration, using the newer methods, though the likelihood of any of them affecting 1926 production is remote.

In other of the California fields, further work may develop worthwhile pools, but at present there is none on the horizon.

Further north, an attempt is being made in the State of Washington to locate a pool in a small basin supposed

(Continued on Page 146)

*Before Production Symposium, Petroleum Division, A. I. M. E., annual meeting, New York.



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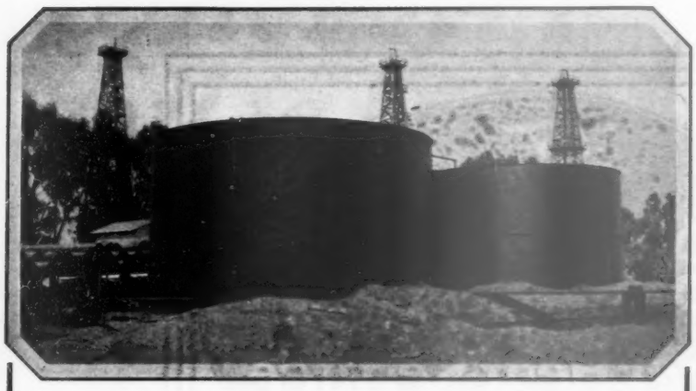

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WILDCATS AND DEEP WELL DRILLING IN ARKANSAS AND LOUISIANA, 1925

By DeWitt T. Ring

About 85 "wildcat" wells were drilled in Arkansas and Louisiana during 1925. Only two have shown any evidence of opening new territory. The Arkansas Fuel Oil Co's. No. 1 Allen, near Bradley, Section 18-19-24, Lafayette County, was completed during November as a 15-bbl. oil well at a depth of 2,785 feet. The oil is 25 degrees Baume gravity. Also, Spencer and Rhoades, Section 9, Township 17, Range 16, 5 miles northwest of the El Dorado Field, have a 50-bbl. well at 1,922 feet subsea, from the Nacatoch sand. The gravity is 31 degrees Baume. This well was completed December 14, and may be a forerunner of a separate field.

While it is true prospecting in the usual pay horizons of the Upper Cretaceous has eliminated much territory in the Arkansas-Louisiana district, there still remain expectations of finding other shallow pools.

To Test the Trinity

Prospects for finding production in the Trinity formation of the Lower Cretaceous are rather encouraging. Where structures in the Upper Cretaceous have been proved by production there seems to be a desire to test the Trinity, especially where there is reasonable expectation of finding it within drilling depth of 5,000 feet or less. This does not apply to wildcat structures.

Wells near Ashdown, Little River County, about 25 miles south of the Trinity outcrop, show plenty of sand bodies. It is clear there is a great body of Trinity whose members are of such character as to make favorable reservoirs under proper structural conditions. The deepest test to penetrate the series on the high part of the Smackover structure was drilled by the Marine Oil Co. in Section 5-16-15 the latter part of the past year. The hole was "lost" at 3,506 feet. The writer supplied "cores" below 3,000 feet from this well to two different company laboratories. No fossils were reported, consequently no age determination could be made. The lithological data was also reported insufficient to be of any value. Hence it is not definitely known if this test reached the upper part of the Lower Cretaceous.

The campaign in the East El Dorado Field, where more than a dozen wells were drilled to the Blossom sand during the latter part of the year, ended only in disaster.

No new development of importance has taken place in the older fields of Arkansas, either in discovery of deeper sands or extension.

A deep test is drilling at present in Section 29-18-15, in the southern part of the El Dorado Field. The Magnolia Co. completed a deep test in the Stephens Field at the depth of 3,560 feet.

The year's development in Arkansas has not yielded much new general geological information.

New Developments

At Cotton Valley the Palmer Trust Corp. has a deep well, located on the high part of the structure, that recently encountered 6,000,000 feet of gas at 4,419 feet. It is probable this is the equivalent of the upper Glen Rose horizon of Pine Island. If this is correct, the horizon of the 3,600-foot gas of Pine Island is probably at about 5,000 feet in the Cotton Valley Field. It does not seem likely that any important production of oil would be encountered above 5,000 feet at Cotton Valley. Very probably the first sand of real possibility below the present producing zone lies below a mile deep. This is only speculative, however, with little concrete evidence to indicate a sandy horizon present at this depth. The Woodbine is reported to have had no showing of oil or gas, but carried salt water in the deep well in this field. At Pine Island the deep gassers of the Dixie and Ohio Oil companies are producing a wet gas from the Glen Rose formation at a depth of about 3,600 feet. This is thought to be the lower part of the Glen Rose, the top of this formation having been recognized at about 2,700 feet. The Red Shale series occurring in the lower part of the Upper Cretaceous are absent in the section on the high part of the Pine Island structure. This series has probably been excluded during its deposition by the presence of a pronounced high in Glen Rose. (The Gulf Refining Co's. well, No. 216 Ferry Lake, Section 14-20-16, at 4,250 feet, did not reach the Glen Rose, but did penetrate the usual "red beds." The hole was "junked" at 4,525 feet).

The gas coming from the deeper source has a very high rock pressure—about 1,300 pounds in the Ohio well, Section 12-21-15, and 1,550 pounds in the No. 43 Dillon, Section 13-21-15, and No. B-1 Noel, Section 24-21-15, of the Dixie Oil Co. Initial volume of the two Dixie wells were 45,000,000 and 15,000,000 feet, respectively. They make about 725 gallons of gasoline per million and have been named the famous "gasoline wells" of Pine Island. The No. 43 Dillon is one of the most remarkable wells in North Louisiana. When it came in at the depth of 3,623 feet, it blew the tools out of the hole and for a time threatened to go "wild." After having been brought under control it was connected to the Arkansas Natural Gas Co's. Pine Bluff-Little Rock line on December 1, 1924. It is said its working pressure stands at 1,200 pounds, while delivering at the rate of from 12,000,000 to 15,000,000 feet per day into the line at a pressure sufficient to force it all the way to Little Rock without the aid of booster pumps, over 200 miles. The owners are saving several thousand gallons of 68 degrees casing-head gasoline per day from an absorption plant recently completed.

Pine Island District

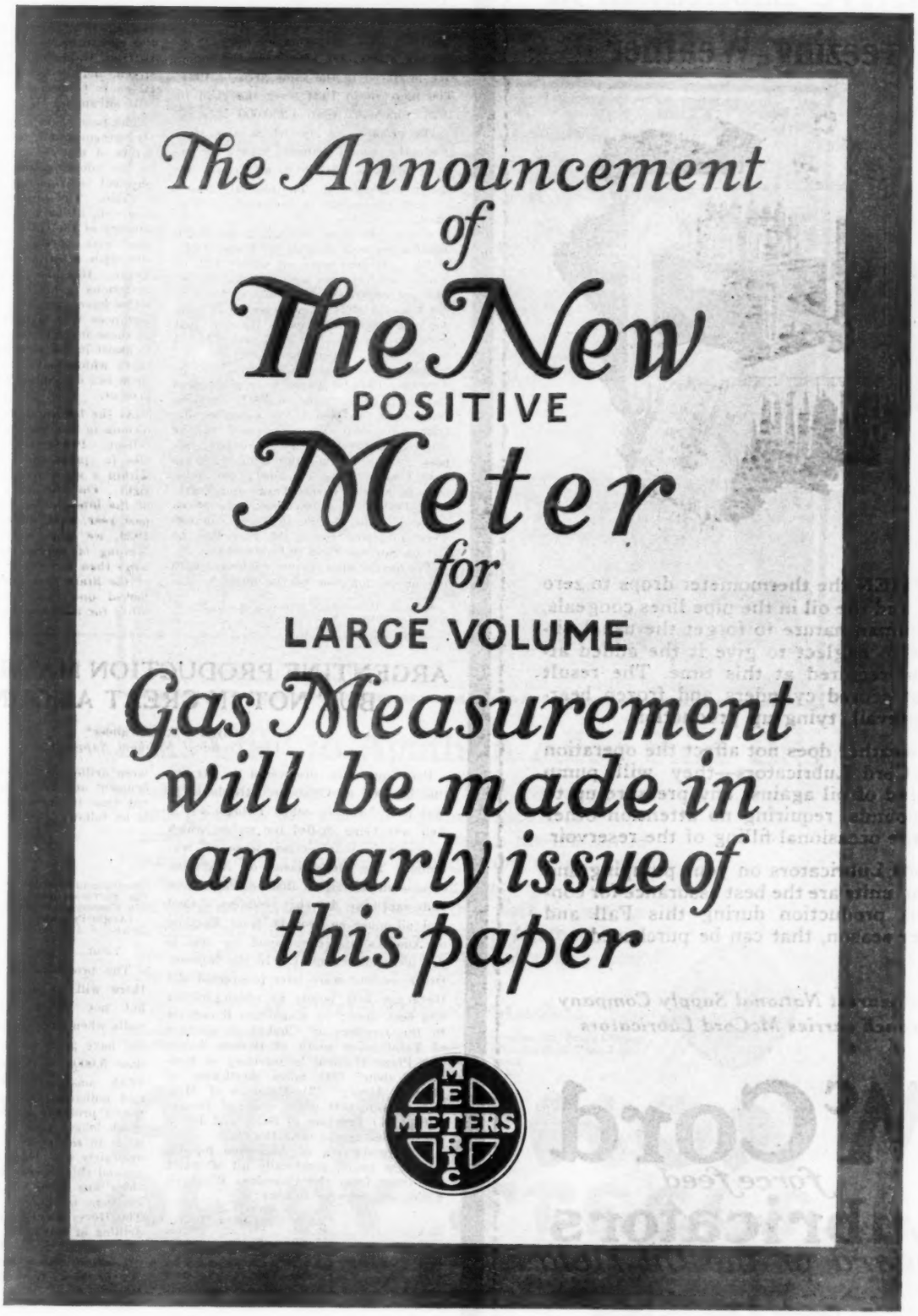
Wells are being drilled in Pine Island with the hope of finding a sand series below the 3,600-foot gas horizon. The Dixie Oil Co. is the most active in this new quest. This company's No. 53 Robertshaw, Section 13, Township 21, Range 15, came in December 6, from 3,903 feet, making 8,000,000 to 10,000,000 feet of gas and 50 bbls of 39 degree gravity oil.

The Dixie Oil Co. has pioneered in deep drilling in this country and has been signally successful in the discovery of both oil and gas production from the Woodbine and Trinity sands in the Pine Island district during the past 4 years. Although rotary rigs are used almost exclusively in Louisiana and Arkansas, it is the Dixie's practice to finish these deep holes with cable tools.

The Gulf Refining and the Dixie Co. are drilling deep tests in the Bull Bayou field of the Red River-DeSoto district. The Gulf well on December 15 was below 5,500 feet. Although the Blossom sand has been producing at Haynesville for 4 years, the Woodbine horizon has never been penetrated at a favorable structural location. The Gilliland, Roxana, and Gulf companies have drilled unsuccessful deep holes around the northern and southern flanks of the structure outside the producing areas; but due to their low structural positions, they cannot be called conclusive tests. At Urania, LaSalle Parish, 12 small producers have been completed during the past year at the base of the Claiborne group around 1,450 feet subsea. The individual production of these wells ranges from 10 to 75 bbls per day. The oil is 21 to 22 degrees Baume gravity and is being purchased by the Dixie Oil Co. Production in that area is found on the west flank of an anticline some distance below the top of the structure. A well recently completed about 1½ miles ahead of production, is reported to be a pro-

(Continued on Page 145)

*Before Petroleum division, A. I. M. E. annual meeting, New York.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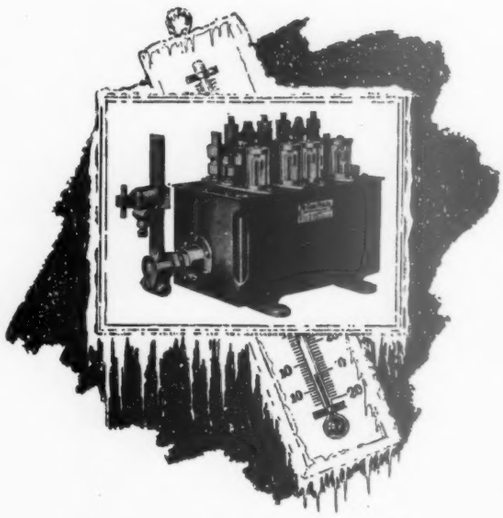

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FOURTEEN NEW POOLS FOUND IN TEXAS OUTSIDE GULF COAST DURING 1925

By Frederick H. Lahee*
The Sun Co.

During 1925, a total of approximately 119,000,000 bbls. of crude oil was produced in Texas outside of the Gulf Coast district. This represents an increase of roughly 12,000,000 bbls. over the quantity produced in the same area in 1924. The increase in 1924, over the yield in 1923, was more than 4,250,000 bbls.

The proportions, in which the 1925 production was distributed among the various fields in this part of Texas, are shown in Figure 1. The monthly record of new production is indicated in Figure 2.

Within the same region, during 1925, 5,600 holes were drilled. Of these, 3,449, or 61.5 per cent were oil wells; 112, or 2 per cent were gas wells; and 2,309, or 36.5 per cent were dry holes. (See Figure 3.). In 1924, there were 3,624 completions, of which nearly 35 per cent were dry holes, and in 1923, out of 4,134 completions, 31 per cent were dry.

Summarizing the 1925 operations by districts, 13 new pools were discovered and three pools, found in 1924, were developed in the Red River Counties district; one pool was discovered in the Bastrop-Caldwell-Guadalupe district; one pool, in the Mexia fault zone, in Navarro County, was extended; one pool, each in North Central Texas and Southwest Texas, was extended; and seven wildcat wells in five different counties were completed during the year was the Lytton Springs Field in Caldwell County.

The outstanding feature connected with the production side of the business was the widespread invasion of West Texas by leasemen and geologists of many companies. The activity began a year or two ago in Mitchell and Reagan Counties spread to include nearly every county from Garza and Kent south to Tom Green and Pecos, and west from Tom Green to Culbertson. This movement is still advancing.

The past year has witnessed a further strengthening of the technical departments of many companies. Particularly in the adoption and application of geophysical instruments has this been noticeable. The torsion balance and seismograph, at first used in the salt dome country of the Gulf Coast, have been applied with more or less success on various types of structure in other parts of Texas. Instruments devised to measure variations in magnetism and other properties have also been tried out, in some instances with satisfactory results. All of these instruments are being employed to assist in the location of geologic structures which may contain oil. None of them can determine whether or not oil is present.

At the beginning of the new year conditions in the business appear to be excellent. Production is declining and a rise in prices for crude is expected within a short time. No big pool is in sight. On the other hand, as a result of the intensive exploratory work of the past year, work which is continuing into 1926, we may confidently expect the opening of several pools. West Texas, more than any other district in the part of the State now under consideration, is looked upon as having greatest possibility for new discoveries.

*Before Petroleum division, A. I. M. E. annual meeting, New York.

ARGENTINE PRODUCTION MAY INCREASE BUT NOT IN GREAT AMOUNT IN 1925

By F. T. Ostrander*
Vice President National Supply Co.

Petroleum was discovered in Argentine in 1907 at Comodoro Rivadavia in that part formerly called Patagonia. A well was being drilled for water, which is scarce in that section, when oil was found. The Government of Argentine became interested as fuel is very scarce and expensive in that country. Coal and oil must be brought from England or America and even wood for fuel is not plentiful, except far in the interior. Other sections were later prospected and there are four points at which drilling has been done: 1. Comodoro Rivadavia in the territory of Chubut, a distance of 1,000 miles south of Buenos Aires; (2) Plaza Huincul in territory of Neuquen, about 600 miles southwest of Buenos Aires; (3) Province of Mendoza, about 600 miles west of Buenos Aires; (4) Province of Salta and Jujuy, 1,000 miles north, near Bolivia.

The production of Argentine for the past few years, practically all of which has come from the Comodoro Rividavia Field, has been as follows:

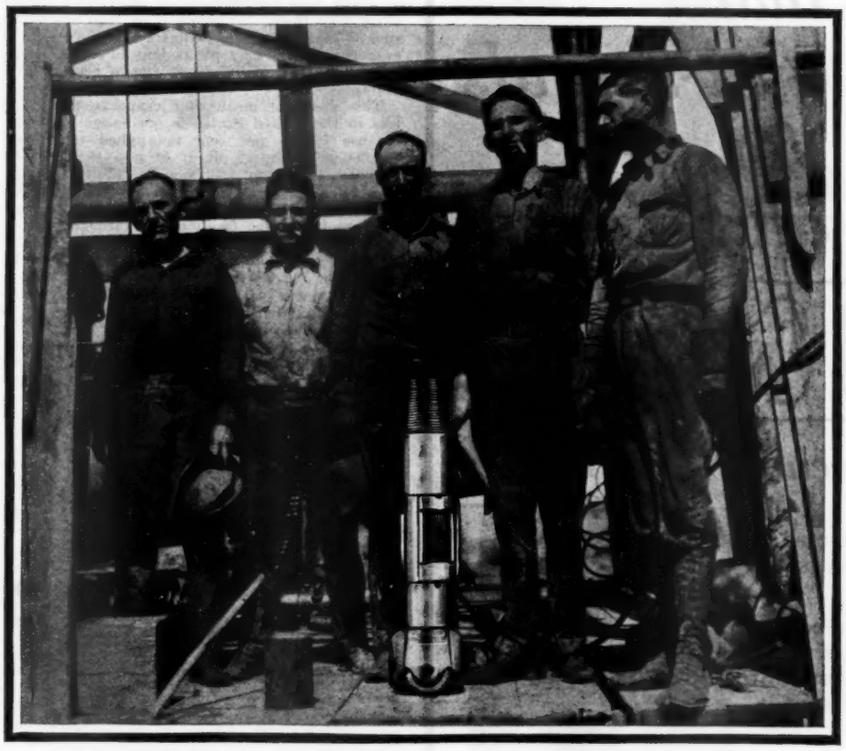
	Gov. Fields	Private Companies	Total
1914	289,000	.....	289,000
1916	857,000	53,000	910,000
1920	1,500,000	234,000	1,734,000
1924	3,640,000	1,226,000	4,866,000
1925	4,620,000	2,000,000	6,620,000

It is rather difficult to fix accurately the number of wells completed as the figures are so compiled as to include the wells drilling. The total number of both in Comodoro Rivadavia for 1924 was 121, of which 71 were by the Government and 50 by private companies. In the first six months of 1925, 87 holes were drilled or drilling, 66 by the Government and 21 by others. At the present time the number of producing wells is as follows:

	No.	Total Daily Average Prod'n Bbls.
Government Fields	154	16,500
Cia Ferrocarrileria de Petroleos	29	2,500
Cia Comercial y Industrial S. A. (Anglo-Persian Oil Co.)	8	2,000
Astra, S. A.	30	1,500
Total		32,500

The prospects for 1926 indicate that there will be some increase over 1925 but not in a great amount. The wells when first brought in are not large, but have good gas pressure. Some will flow 5,000 to 10,000 bbls. for a time. With conservation of the gas pressure and judicious flowing of the wells, they would probably produce naturally for a much longer time than at present. The pools in the present Government reserve are fairly well defined and the many tests around this reserve have failed so far to show any signs of production although gas has been found in several places. The Government's program calls for the drilling of 150 wells against 100 for that year, but it is doubtful if this can be carried out. However, the recent opening of the new Government refinery near Buenos Aires, with a daily capacity of 15,000 bbls. will make it necessary to increase their production. If improved methods can be more generally employed, the Government production can no doubt be increased considerably. So far as one can prophesy, there are no indications that the production in Argentine will in any way meet the local demands in that country for a long time to come.

*Before Petroleum Division, A. I. M. E. annual meeting, New York.



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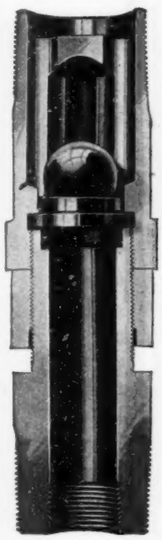

Cross Section View

—1—

It is made from solid bar steel.

—2—

It is equipped with oversize NECO Chrome Steel ball and seat.

—3—

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—4—

The cage is securely locked on body by use of a wide lock nut which prevents the body from unscrewing.

—5—

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External View

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EVAPORATION OF PETROLEUM AND METHODS OF PREVENTION

By J. H. Wiggins*

Since 1920, the industry has been very busy working out new devices and has spent millions of dollars in building new tanks with gas-tight roofs and in replacing thousands of old "air-leaky" roofs with gas-tight ones. Many unnecessary complete movements of oil into and out of a tank have been eliminated, especially along pipe lines. Although it is impossible to make a verified estimate the total evaporation loss may be as low as one-half of the loss of five years ago in percentage.

This does not mean that evaporation loss in the United States is not serious, because if 3¾ per cent is applied to 700,000,000 bbls. of oil, it is seen that 26,250,000 bbls., of 1,102,500,000 gallons of gasoline have been lost this year.

The price of 68 to 70 gasoline is definite proof that the fraction lost through evaporation is much more valuable than the entire body of gasoline (13½ cents per gallon for 68 to 70 gasoline, vs. 10 cents for motor fuel, November 16, 1925). If, however, only 10 cents per gallon be applied to the volume evaporated the annual loss to the United States for 1925 is $110,250,000. Its value is nearer 15 cents per gallon, or about $165,000,000 United States loss for 1925.

Causes of Evaporation

Evaporation loss should be considered in two divisions. The first is "Storage Only." The second is, "Tanks that are either constantly or at frequent intervals being filled and emptied," or "Working Tanks." In the case of "Storage Only," the four practical causes applying to standard roofs are: The volatility of the liquid stored, lack of being perfectly gas-tight, magnitude of daily change in temperature, and the actual temperature of the surface (not the main body) of the liquid stored.

Naturally, the most important of these is: Ordinarily the more volatile the product the more valuable it is. Therefore the next three practical causes should be considered with volatility a constant. Then "the lack of being perfectly gas-tight" is by far the most important cause. Although temperature be adequately controlled and the oil be not particularly volatile, a tank with an "air-leaky" roof will lose large volumes of gasoline through minute holes, for these work 24 hours per day.

In the case of tanks that are being filled and emptied daily, the main cause of the loss is the pumping out of a mixture of air and vapor equal to the volume of oil introduced into the tank. When the tank is emptied, a volume of fresh air is drawn in equal to the volume of oil drawn out. The fresh air naturally becomes saturated with gasoline vapor and on refilling is forced out. This cause on working tanks may represent volumetrically 90 to 95 per cent of the total causes of evaporation loss. The other practical cause, of minor importance, is (as in simple storage) the change in temperature inside the tank.

As an example, to compare the above two causes, if 50,000 bbls. of liquid are pumped into a 55,000-bbl. tank, then 258,000 cubic feet of air-vapor mixture is forced out by the filling action. Say this filling occurs in 24 hours. If the change in temperature in the tank is 30 degrees Fahrenheit and the tank is considered on the average as being half full, then 10,000 cubic feet of air-vapor mixture is forced out and into the tank due to theoretical thermal expansion and contraction only. Then the ratio of thermal expansion to filling as a cause of evaporation loss is as 10,000:258,000. In the case of a tank that is rapidly filling, the change in temperature of the surface of the oil will be slight and for this discussion practically negligible.

Since gases are being forced out of the tank rapidly during filling it does not matter whether there are one, two or more vents, or a large or small number of pinholes because the pressure is always from the inside and this means that all of the vents are being used to allow the gases to go out. The point to be emphasized is that if a tank is one which is constantly being filled and emtied and is never used for standing storage, it is really unimportant whether the roof is entirely gas-tight or not, because the filling loss is so great and is independent of ordinary "air-leakiness." Thus "air-leakiness," the primary cause of evaporation loss in standing storage, is practically negligible on very active tanks.

Moreover, if it is assumed that the air vapor mixture is 25 per cent vapor in both cases of filling and thermal expansion above cited, the total volumetric loss in gallons of gasoline, from the filling cause only is 2,150 gallons and the loss from all other causes is about 100 to 150 gallons. This makes a total loss for this operation of 2,250 gallons which equals 53.5 bbls.

Actual Volumetric Measurement

The first method is by actual measurement of an untouched volume of liquid. In the first place, the container or containers may have leaks that should be discovered and taken care of in one way or another. For instance, the case of a leaky tank bottom which is really indeterminable and may be serious can be safely taken care of by keeping several inches of water on the bottom so that any leakage will be water. In calculating the volume of oil only in the tank, the depth of water must be accurately measured. This necessitates gauging the depth of water in exactly the same point or points of the tank bottom.

Crude oil which is being measured may at the beginning of the test have had considerable water standing in suspension in the oil. Some proportion of this water may settle into the bottom of the tank, thereby showing an apparent loss of oil which would be unreal. There would simply be a loss of water from the oil.

Another cause of error, which may be slight is the condensation of water on the underside of the roof and the inside of the tank shell at night. This condensation is sufficient to drip off fittings that are placed in the roof, as well as the underside of the roof and the inside of the shell. It is noticeable when unscrewing a flange early in the morning that its underside is covered with large drops of water, some of which fall off. Just how large volumetrically such condensation may be is unknown. However, if water is kept in the bottom of the tank during the period of the test, this cause of error should be eliminated.

The settling of a tank will cause a large error. If the settlement occurs near the point of gauging, the measurement will register a gain of volume of oil in the tank. If the settlement occurs opposite the point of gauging the measurement will show an excessive loss of oil from the tank. The simplest way is to eliminate this error gauge at two or more points diametrically opposite each other.

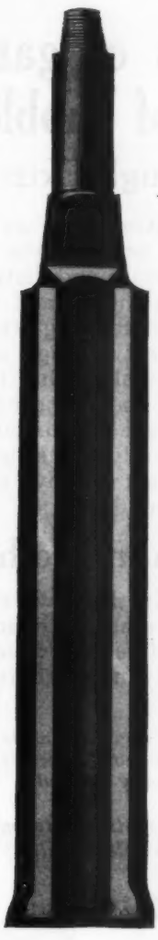
Gravity Change Method

A second method of determining evaporation loss on an untouched body of liquid is by the gravity change method. This consists in accurately sampling and determining the gravity of the true oil (oil without b.s.) at the beginning of the test and periodically thereafter. Many of the errors encountered in the actual measurement of volume are eliminated by this method but others are introduced. Some of these are:

Variation in Content of Emulsion—If the percentage of emulsion in an oil is changed, then the gravity is also changed without any evaporation loss. If an oil of 39 degrees A.P.I. loses 1 per cent of an emulsion of about 14 degrees A.P.I. and at the same time loses 1 per cent by evaporation of 77 degrees A.P.I. gasoline then the gravity of the resultant oil is practically unchanged. This same condition can happen in a series of pipe line stations. B.s. might drop out, evapora-

*Before Petroleum Division, A. I. M. E., Annual Meeting, New York. Copyright, 1926, by the American Institute of Mining and Metallurgical Engineers, Inc.

NG BITS



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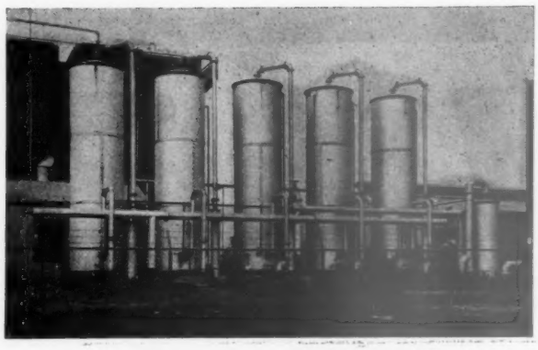

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tion occur and at the end still show an unchanged gravity from the pick-up point.

Evaporation of the Samples—All samples should be taken in exactly the same way and under similar conditions so that the difference in loss from these will be a minimum. This is important and constitutes a considerable source of error.

Average Samples—Especially in the case of testing oil that is being moved along a pipe line, it is necessary to use care and proper methods to obtain an average sample of the oil that passes the two points which are being compared. There are satisfactory methods of doing this.

Measurment and Testing of Gas Samples

Another method of determining evaporation loss is by the actual measurement of the gases coming from a tank and determining the gasoline content in it. This is the most unsatisfactory method of all, as the measurements are the most difficult and the errors introduced are the most difficult to trace, such as leaks in a tank, inaccuracy of meters and elaborateness of apparatus.

The best plan is to use the first two methods outlined in parallel, namely, actual measurement of an untouched volume of liquid and the change in gravity.

Theoretical Control of Evaporation

Evaporation as considered in this paper occurs only if air comes in contact with the liquid. There are two theoretical as well as practical ways of eliminating this loss. One of them is to obtain control of all the air-vapor mixture that may come in contact with the oil and then never lose that control. The other method of eliminating the loss is to eliminate the cause, namely, by never allowing air to come in contact with the oil.

The methods that have been brought out in the last few years for decreasing evaporation loss have been:

Gas-tighting, insulation, sprinkling, gas-holders connected to gas-tight tanks and floating roofs.

Gas-tighting—It is obvious that to make a storage tank gas-tight instead of "air-leaky" decreases the amount of air that comes in contact with the oil and is also the first step necessary to take to gain control of the air that comes in contact with the oil surface.

Insulating—Under insulation, we find the purpose to be really twofold. In the first place, insulation, as it applied to wooden roofs or nongas-tight steel roofs tends to make them gas-tight. Secondly, it decreases the temperature change of the air-vapor mixture under the roof and also decreases the temperature change of the liquid surface. It is believed, if wooden roofs are covered with insulation, that gas-tighting effect is worth much more than the insulating effect. Under insulation falls the water-top roof. The water-top roof in case water is really kept on it insures a gas-tight condition. Secondly, being flat, it decreases the volume of air and vapor above the oil and thirdly, has some effect in keeping down the change in temperature underneath the roof.

Sprinkling—Sprinkling has no additional gas-tighting effect. Its purpose is to lower the actual temperature of the surface of the liquid and decrease the daily change in temperature of the air-vapor mixture over the oil and the temperature change of the oil surface. It is possible with proper sprinkling to reduce the temperature underneath the roof below the average air temperature.

Gas-holders—Gas-holders have in general been applied only to storage tanks. This is a final attempt after obtaining a hold on the amount of air that comes in contact with the oil to retain that control from day to day. In other words, the volume of gases forced out of the tank is collected in the gas-holder. When the tank must receive gas, it is supplied from the gas-holder. Thus the gas which is reintroduced into the tank is saturated with a vapor which originally came from that tank and therefore does not require any additional vapor from the oil surface. If two tanks are connected to the same gas-holder, they should contain oil of nearly the same volatility.

Floating Roofs—This device attacks the evaporation problem in a way that is different from all the rest, namely, that it eliminates the cause of evaporation loss by eliminating the contact of air with the oil, except for a comparatively small annular space around the periphery. This area at the periphery should not be freely exposed to the air. The amount of air that may come in contact with this annular area must be under control.

Decreasing Losses "Working Tanks"

Working tanks are tanks that are filled periodically either each day or once every few days or weeks. The methods of attacking this problem may be listed as follows:

Interconnection of tanks by vapor lines when in pairs, interconnection of tanks by vapor lines when in pairs with a gas-holder added, holding tanks at pipe line boosting stations without changing the oil level in the tank, vapor recovery system, and floating roofs.

Interconnection of Tanks—One of the first steps taken to minimize the amount of vapor that is forced from a tank which was being filled was along pipe lines where one tank was being filled nearly as rapidly as a nearby tank was being emptied. Large vapor lines connecting the two tanks were designed to push the vapor from the filling tank into the emptying one, and in this way supply to the emptying tank a saturated gas.

Interconnection of Tanks and Gas-holder—The next step where working tanks were operated in pairs was to install a gas-holder to help take care of the lack of balance of the pumpings and the thermal breathing. In addition to the pumping loss, it must be remembered that there is also a large thermal breathing loss.

Holding Oil Level in Tanks at Constant Level—Along pipe lines formerly all the oil was run into a tank and then pumped out. Many of these tanks have now been connected with the main line in such a way that they receive only an excess of oil that may be pumped by the preceding station, or when the preceding station is low in its pumpings it supplies the necessary oil to take care of the pumps at its own station. By synchronizing the rates of pumping at all the stations along the line, it has been possible to keep down the increase and decrease in these tanks floated on the line to a comparatively small amount. Of course, this system eliminates the pumping in and out of a large volume of air-vapor mixture.

Vapor Recovery System—At refineries the system that has been most favored to date is the vapor recovery system. Briefly, this system consists in making all the tanks as nearly gas-tight as possible, equipping them with safety vents so that they will not be sucked in, or lifted off, and placing vapor lines from each tank to a vapor gathering system of pipe lines. This gathering system is connected to a vacuum pump. All gases coming from the tanks are thus collected, compressed and run through an absorption tower or are compressed and condensed to make a very volatile gasoline.

Floating Roof—The floating roof is the latest development attacking this problem and as in the case of simple storage, it eliminates the loss by eliminating the cause, namely, the contact of air with the surface of the oil. The function of the floating roof is to follow the oil surface up and down and maintain a flexible seal between it and the tank shell. Therefore, as far as evaporation loss is concerned, the floating roof is just as effective whether the tank is a storage tank or one that is handling 5,000 bbls. per hour or more. The steel deck replaces the oil surface as the piston which pumps air in and out of the tank. Thus no vapor is pumped in and out.

Tank Car Loss and Its Prevention

For Crude Oil—Five years ago, practically nothing was done to minimize tank car losses. But because a tank car was built heavy and gas-tight and had only one vent, the evaporation during transportation only was kept down. However, the filling and emptying losses here were excessive because the domes were left wide open and the oil was splashed into the car. This caused a thick fog

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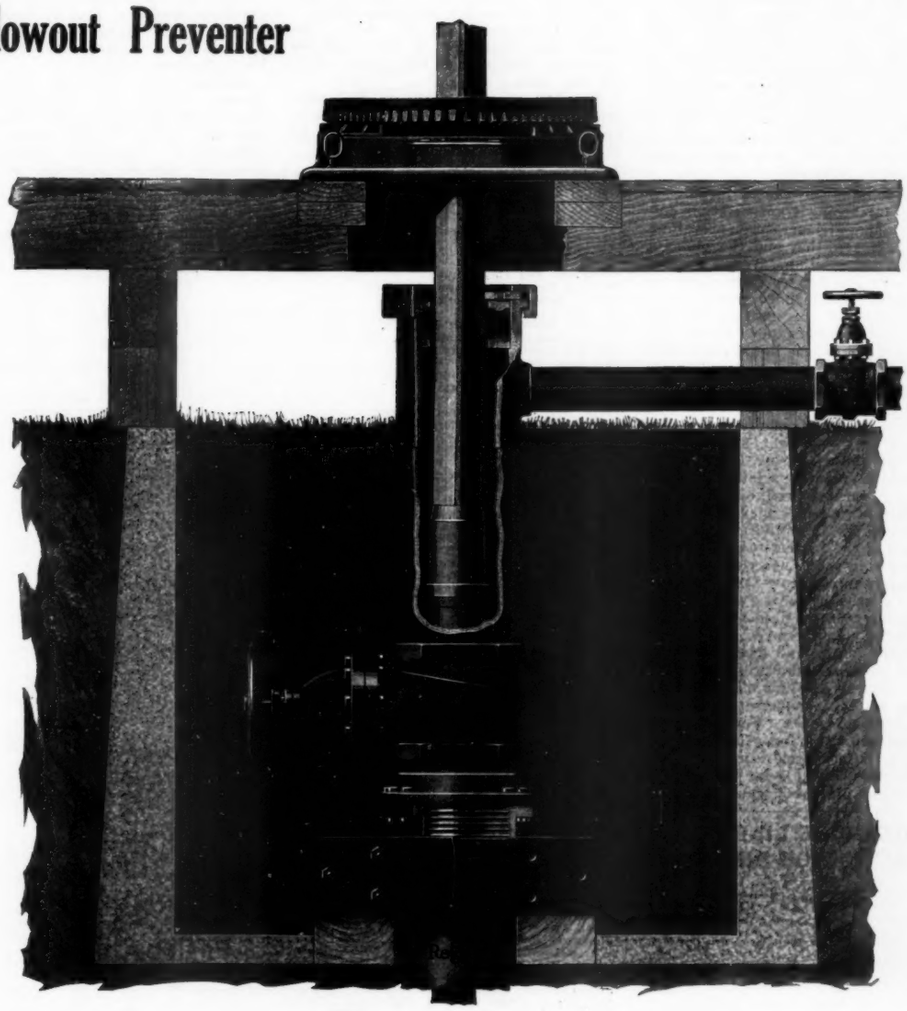

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and no doubt some oil left the car in the *phase.*

The filling and emptying loss (measurement loss) in the case of tank cars is in general double that in stationary tanks. The reason for this is as follows: After being emptied a car has several days or weeks to aerate, so that when filling is started it contains only fresh air. Therefore, the filling action saturates this amount of air from the oil that is put into the car. In the case of stationary tanks, generally several feet of oil are left in the tank so that when it is refilled it contains air already saturated with gasoline vapor. When the tank car is emptied it takes in a carful of fresh air which in turn is saturated with gasoline vapor from the oil in the car. Thus far a single filling and emptying of a tank car—two carfuls of air are saturated with gasoline vapor. But in general, for a single filling and emptying of a stationary tank, only one tankful of air must be saturated.

For Gasoline—The causes for loss in gasoline cars during transportation only were the high temperature prevailing, leaky valves, agitation and the pumping action due to agitation. When gasoline cars get over 100 degrees Fahrenheit, the vapor pressure is high so that a small actual leakage of gas contains a high percentage of gasoline vapor. In the case of natural gasoline, the liquid rises above its normal boiling point and unless the valve is absolutely tight, a difficult condition to attain, the liquid will boil away.

The various methods of preventing tank car losses are: Gas-tight filling domes, recovery of vapors during filling, white and aluminum paint, insulation and stabilization of natural gasoline. Especially in the case of gasoline, many companies use dome covers for filling which eliminate much of the windage and fog losses. This device is more effective, however, if the vapors forced from the car are returned to a gasoline recovery plant. This vapor recovery is practiced by many natural gasoline manufacturers. The use of light colored paints and insulation keeps down the peak temperatures. Stabilization of natural gasoline eliminates the condition of being supersaturated with liquid petroleum gases. Formerly when these gases separated from the liquid gasolines under atmospheric temperature and pressure, they carried with them a very large amount of stabile gasoline.

WICHITA PIPE LINE CO. ELECTION OF DIRECTORS

At the annual meeting of the Wichita Pipe Line Co., held in Wichita Falls, Tex., the following officers and directors were reelected: Roy B. Jones, president; W. M. Priddy, vice president; L. V. Hull, vice president and general manager; A. W. Eichenberger, assistant secretary and treasurer. Directors: Roy B. Jones, O. H. Berryman, W. M. Priddy, P. F. Gwynn, B. J. Shaw, D. O. Johnson, W. W. Silk, W. F. Davis and L. V. Hull.

A 5 per cent divident was declared, payable February 15. A total of 152 miles of pipe line covering the largest portion of the Wichita Falls district, is owned and operated. In addition, the company is constructing 9 miles of line to the Priddeaux Field, in southeastern Archer County, Texas. The Wichita Pipe Line Co. is operated as a feeder for Wichita Falls refineries.

OIL GAUGER EXAMINATION

The United States Civil Service Commission announces an open competitive examination for oil gauger, applications to close March 30. The examination is to fill vacancies in the Indian Service in Oklahoma, and throughout the United States. The entrance salary is $1,860 a year with quarters, fuel and light. After the probational period required by the civil service act and rules advancement in pay may be made without change in assignment up to $2,400 a year.

FOUR NEW FIELDS ADDED IN 1925 IN ROCKY MOUNTAIN TERRITORY

By Fred E. Wood*

During 1925 development in the Rocky Mountain area enjoyed steady progress with no new developments of startling interest. Four fields have been added with several new developments in others. The new fields are:

A wildcat drilled by the Union Oil Co. of California on Lake Creek, a structure in west-central Wyoming, encountered black oil in the Embar formation. No test of the production has been made.

The Continental Oil Co. drilled on Table Mesa anticline in New Mexico and found 300 bbls. of high grade oil in the first well.

Tow Creek, in northern Colorado, proved to be a commercial field when a productive shale horizon was tapped by the Texas Production Co.'s test.

The Marland Oil Co. opened up the Thornburg gas field in northern Colorado with an initial production of 43,000,000 feet in the Dakota.

Two recent developments are:

The Rangeley Field in northern Colorado proved to be productive of a large volume of gas when tested by the Midwest Refining Co. and the Texas Production Co.

Also, greatly increased production in the Kevin-Sunburst Pool in Montana resulted from the opening of what is known as East Pool, a productive area on the Kevin Sunburst uplift.

Production in Wyoming during 1925 showed a 26 per cent decline from 1924. This is considerably greater than the 11 per cent decline of 1924 from the preceding year. The entire Rocky Mountain area suffered a decline of over 15 per cent from 1924 to 1925. The past year's development in the Kevin-Sunburst Field in Montana; Iles, Moffat and Fort Collins structures in Colorado; and Rattlesnake, Hogback and Artesia, in New Mexico, is responsible for the smaller decline in the entire Rocky Mountain region in comparison to Wyoming alone. The reason for the greater decline in 1925 in Wyoming is that Salt Creek was producing 100 per cent during 1924 after a period of prorating covering the first 11 months of 1923. This prorating varied from 20 per cent to 65 per cent of the total production, but the greater portion of the year was on a 34 per cent basis.

To estimate the production and new possibilities for 1926 is very difficult but it appears safe to say that the present fields with the drilling campaigns which are planned should not decline much over 10 per cent of the 1925 production. There are likely prospects in this western territory, some areas heretofore untested will develop new fields, as well as the discovery of deeper sands in old fields.

Tables I and II show the results of wildcat drilling in Wyoming and Colorado for the past year.

*Before Petroleum Division A. I. M. E. Annual Meeting, New York.

TABLE I

Results of Wildcat Drilling in Wyoming During 1925

Field and Company—	Sec.	Twp.	Rge.	Depth in Ft. Jan. 1 26	Condition
Wallace Creek, Continental Oil Co.	15	24	87	3,120	Drilling. Teapot sand is the objective.
Boone Dome, New York Oil Co.	10	35	85	5,200	Shut down. Attempting to deepen to Frontier with diamond drill.
Powder River, Midwest Ref. Co.	25	36	65	3,465	Abandoned. Water in Lakota and Sundance sand.
North Casper Creek, Midwest Ref. Co.	36	37	82	3,307	Abandoned. Water in Tensleep.
Notches Dome, Marland Oil Co.	10	37	85	2,788	Completed. Water in Tensleep.
Arminto, Texas Prod. Co.	20	37	86	3,267	Shut down.
Wilson, Dome, Marland Oil Co.	32	35	83	1,735	Testing Morrison sand where show of oil was encountered.
Dugout, Marland Oil Co.	11	40	80	3,016	Abandoned. Water in Frontier and Lakota.
Hale Dome, Union of California	3	42	93	2,066	Abandoned. Water in Madison lime.
Murphy Dome, Producers & Refiners	3	43	91	1,025	Shut down.
Zimmerman Butte, McPherson and others	28	44	93	2,455	Drilling.
Little Sand Draw, McPherson and others	2	44	96	717	Shut down.
Gebo Dome, Utah Oil Ref. Co.	23	44	95	2,745	Drilling in Morrison. 2,000,000 feet of gas.
Golden Eagle, Midwest Ref. Co.	11	45	97	4,019	Abandoned. Mesa Verde carried water.
Steele Creek, Tarrant and others	17	46	82	2,587	Fishing.
Gooseberry, Prairie Oil & Gas Co.	32	47	100	2,205	Drilling.
Soda Creek, Gose Syndicate	28	47	65	4,800	Shut down.
Pump Creek, Lily and others	35	48	64	450	Shut down.
Hidden Dome, Ohio Oil Co.	31	48	90	2,095	Drilling.
Pitchfork, Big Horn Dev. Co.	14	48	108	809	Shut down.
Spring Creek, Clark and others	11	49	102	3,000	Shut down.
Oregon Basin, Ohio Oil Co.	8	51	100	2,400	Completed. 50,000,000 feet gas encountered in Sundance which was plugged off account of water.
Shoshone Anticline, Washington O. & G. Co.	20	53	101	1,810	Shut down.
Shoshone Anticline, Elk Butte O. & G. Co.	20	53	101	1,805	Shut down.
Byron Anticline, California Oil Co.	31	56	96	4,168	Abandoned. Water in Greybull sand.
Garland, Producers & Refs.	30	56	97	3,123	Abandoned.
Polecat Anticline, Harriman and others	10	56	98	500	Shut down.
Garland Anticline, Utah Southern	29	56	97	875	Running casing.
Garland Anticline, Ohio Oil Co.	33	56	97	1,860	Sidetracking casing.
Sage Creek, Bridger Oil Co.	21	1n	1w	1,833	Drilling.
Pilot Butte, Argo Oil Co.	21	3n	1w	2,790	Pumping 10 bbls. oil from lower Benton. Well not completed.
Sheldon Dome, Mack Oil Co.	15	5n	2w	3,000	Shut down.
Bry Creek, Kinney Coastal	27	6n	3w	2,565	Abandoned.
Dry Creek, Kinney Coastal	27	6n	3w	1,850	Drilling.
Seven Mile Dome, Texas Prod. Co.	3	17	77	530	Drilling.
Baxter Basin, Producers & Refs.	13	17	104	3,345	Completed. 21,000,000 feet gas in Dakota.
Quealy, Texas Prod. Co.	13	17	77	1,120	Drilling.
Sage Creek, Marland Oil Co.	27	18	87	2,573	Abandoned in Morrison.
Dutton Creek, Midwest Refining Co.	1	18	78	4,327	Drilling to test Muddy and Dakota sands.
Cooper Cove, Ohio Oil Co.	19	18	77	5,400	Abandoned.
Eight Mile Lake, Producers & Refs.	2	19	88	3,200	Drilling.
Simpson Ridge, Producers & Refiners	20	21	80	6,931	Abandoned. Deepest test in Wyoming.
St. Mary's, Producers & Refs.	10	21	84	720	Drilling.
Medicine Bow, Southwestern Pet. Co.	25	21	79	4,960	Plugging back to Frontier.
Sugar Creek, Producers & Refs.	34	22	86	1,800	Abandoned. Dry hole.
Sugar Creek, Producers & Refs.	35	22	86	1,410	Drilling.
Foote Creek, Prairie Oil & Gas	25	22	78	2,525	Abandoned. Water in Tensleep.
Allen Lake, Texas Prod. Co.	18	22	78	1,950	Abandoned. Water in Lakota.
Sherard Dome, Ohio Oil Co.	19	25	88	2,217	Abandoned. Water in Frontier.
Wertz Dome, Texas Prod. Co.	13	26	90	4,246	Abandoned. Water and oil in Cloverly.
Crooks Gap, Southwestern Pet. Co.	7	28	92	2,495	Abandoned.
Crooks Gap, Producers & Refs.	13	28	93	2,582	Completed. Initial 40 bbls. in Frontier sand.
Sheep Creek, Union of California	10	28	92	2,300	Drilling.
Dry Piney, Utah Oil Ref. Co.	1	28	114	4,002	Abandoned.
Mellem Dome, Ohio Oil Co.	13	29	82	3,080	Abandoned. Water in Sundance.
Alcova, Kinney Coastal	23	30	83	1,120	Abandoned in Granite.
Schnoor Dome, Kinney Coastal	31	31	80	2,942	Abandoned in Tensleep.
Buck Springs, Producers & Refs.	29	33	88	1,342	Abandoned.

Summary of Results

Completed gas wells, 2; completed oil wells, 3; abandoned wells, 22; incompleted wells, 31; total, 58.

TABLE II

Results of Wildcat Drilling in Colorado During 1925

Field and Company—	Sec.	Twp.	Rge.	Depth in Ft. Jan. 1 26	Condition
Lafayette Structure, Ohio Oil Co.	33	1	69	5,340	Abandoned, water.
Arickaree Dome, Continental Oil Co.	28	3	43	2,885	Abandoned.
Longmont Dome, A. A. Rollestone Co.	34	3	69	7,300	Abandoned. Deepest test in Rocky Mountain region.
Haystack Dome, Ohio Oil Co.	28	2	70	3,497	Abandoned. Dry hole.
Rangeley, Midwest Ref. Co.	30	3	102	2,648	Shut down. Gas in Dakota.
Rangeley, Texas Prod. Co.	30	2	102	3,001	80,000,000 feet gas in Dakota.
Watkins Structure, Eman Oil Corp.	28	3	64	1,080	Drilling.
Thornburg Dome, Marland Oil Co.	16	3	91	3,127	43,000,000 feet gas in Dakota.
Berthoud Dome, Panuco Exploration Co.	30	4	68	1,830	Waiting for casing.
Berthoud Dome, Midwest Ref. Co.	16	4	69	3,875	Abandoned. Water.
Beaver Creek, Transcontinental	32	4	59	3,697	Abandoned. Water.
Hog Ranch Structure, A. A. Rollestone Co.	17	5	64	3,340	Fishing for tools.
Tow Creek, Texas Prod. Co.	19	6	86	3,680	Drilling.
Tow Creek, Texas Prod. Co.	7	6	86	2,460	Completed. Initial 250 bbls. from shale.
Tow Creek, Texas Prod. Co.	18	6	86	3,874	Drilling.
Carbonera Dome, Marland Oil Co.	23	7	103	3,400	Running casing.
Fort Collins, Equitable Oil Co.	34	8	69	1,515	Drilling.
McCallum Dome, Continental Oil Co.	13	9	79	2,780	Drilling.
Book Cliff, Gypsy Oil Co.	9	9	101	2,719	Shut down for winter.
Calhan Dome, A. A. Rollestone Co.	9	13	62	4,605	Drilling.
Rush Creek, California Oil Co.	19	16	48	4,015	Drilling.
Red Creek Dome, Red Creek Oil & Gas Co.	19	17	67	1,351	Drilling.
Four Mile Dome, Mutual Oil & Dev. Co.	34	17	70	3,175	Running casing.
Eads Structure, Ne-No-She Oil Co.	18	20	46	4,160	Shut down.
Pueblo Structure, Ohio Oil Co.	26	21	64	1,740	Abandoned. Water.
Two Buttes Structure, Chesapeake Oil Co.	30	27	45	3,150	Drilling.
Southeastern Colorado Oil Co.	28	28	52	800	Drilling.
Timnath Dome, Panuco Epioration Co.	16	29	68	2,100	Shut down.
Coke Oven Structure, Gilmore Oil Co.	4	45	16	2,802	Shut down for winter.

Summary of Results

Completed gas wells, 2; completed oil wells, 1; abandoned wells, 7; incomplete wells, 19; total, 29.

REPUBLIC SUPPLY COMPANY

REPUBLIC SUPPLY STORES, located at 25 centers of drilling activities, carry complete stocks of equipment of known dependability; including Republic Iron & Steel Co.'s Tubing, Casing, Drive and Line Pipe; Standard Seamless Tube Co.'s Seamless Upset Rotary Drill Pipe and Casing; American Well & Prospecting Co.'s "Gumbo Buster" Rotary Equipment; Jones' Acme Sucker Rods, and Gas Engines; Broderick & Bascom's Wire Rope; Hughes Tool Co.'s Hughes Rock Bits, Hughes Disc Bits and Hughes "Acme" Tool Joints; Bovaird & Seyfang Oil Field Boilers; Wall (Walk Laid) Bull Ropes and Manila Cables; Rhodes Master Packing.

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***SHREVEPORT, LA.**

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†El Dorado, Ark.
†Smackover, Ark.

***TULSA, OKLA.**

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†Yale, Okla.
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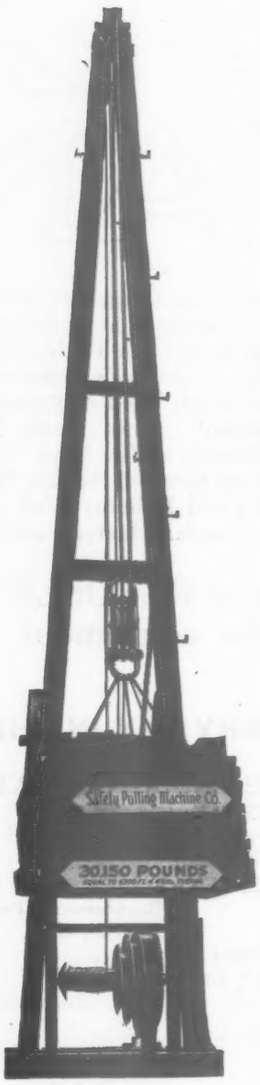

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Reel or Drum; 32 lb. 8¼ casing filled with concrete for winding drum, differentials banded with 3/16 band iron, brake surface 6"x40", choke brake style same as Star drilling machine.

The whole reel assembly is mounted on 2¾ square steel shaft extending clear through reel, secured by three heavy castings.

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RESEARCH IN OTHER INDUSTRIES LOWLY SHOWING FOR PETROLEUM

By L. M. Fanning

With a program for scientific research in petroleum being launched, it is of interest to see what other industries have accomplished in the way of pure research and what scientific study has done for them. It is also pertinent to regard the petroleum industry's status as regards research in comparison with other industries.

In recent years scientific development has made strides in all lines of endeavor, but broadly speaking this phase of activity has lagged as compared with the industrial growth of this country.

It is safe to say that while fundamental research work in petroleum has scarcely been undertaken and that while a comparison with other industries shows the oil industry far down the list in this regard, the steps now being taken under an organized fund for research will place the industry well in the forefront in a matter of a few years.

In the first place, petroleum offers great possibilities for scientific discoveries. In the second place, the research program being worked out by the American Petroleum Institute is for the benefit of the entire industry. Results of purely scientific work done under the fund will be available to the whole oil business and the applied science resulting will be on a competitive basis which should insure large and quick accomplishments for the benefit of individual units and for the benefit of the public.

All Companies Interested

Instead of one large organization developing the scientific possibilities of petroleum as has been the case in other industries, virtually all companies which hope to keep in step with progress will be active on the scientific side under the stimulus of the industry research program.

It is also important to mention that the petroleum industry bids fair to be unique in its recognition of the importance of scientific research. While other industries have accomplished notable things on the scientific side, this has been largely through the private activities of the companies comprising the industry and to a certain extent may be regarded as in line with company expansion.

The oil industry is one of the first, if not the first, industry to organize for pure research on an industry basis—results to be made equally available to all units of the industry and to the public.

Those in touch with scientific development state this country is lagging behind Germany, France and England in research in pure science. A group of leading scientists and prominent public men comprising the board of trustees of the National Research Endowment recently made this statement in a call to the public for funds to support a research program.

The National Research Endowment was established by the National Academy of Sciences which appointed the National Research Council, and its activity is interesting as indicative of present tendencies in scientific development. An outline of its plans will be given later in this article.

What Others Have Done

When the American Petroleum Institute began its study of research possibilities under Dr. Van H. Manning, then the institute's director of research, a special committee was called together to consider certain phases of the question, and a survey was made of what other industries had done in research with special reference to the status of the petroleum industry.

It was pointed out that certain industries or crafts had been built up on the accumulated experience and empirical knowledge, or art, of such particular industries. In addition to this method of improvement or progress, certain other industries have shown improvement directly traceable to scientific research.

Two of our great modern industries had no existence prior to the scientific researches upon which they are now admittedly based. These two industries are the electrical industry and that of the manufacture of coal tar derivatives, which includes practically all of our dyes and photographic chemicals, and many valuable medicinals, antiseptics, insecticides, military and industrial explosives, solvents and perfume materials.

It is naturally evident that many other factors have contributed to the financial success of these industrial applications but it is of considerable interest to make a comparison of a number of our more important industries on the basis of the proportion of their present success which can fairly be attributed to the application of information and processes obtained by scientific research.

This the special committee of the institute did and on this basis and with the qualifications above noted, the committee agreed upon the following relative rating:

Rating From Research

1. Coal Tar Derivatives—100 per cent. The development of this industry has occurred entirely in the last 60 years and followed closely the development of modern organic chemistry.

2. The Electrical Industry—100 per cent. All of the manifold applications of electricity, the generation, transmission and use of electrical power, the various electro-chemical industries, electrical illumination, telephone, telegraph, X-ray and the modern radio have been based admittedly upon scientific investigations which in many cases were originally regarded merely as curiosities in physics.

It is, of course, true that in many of its modern phases this industry is largely what is called "engineering" but probably the most scientific of the various branches of engineering and still wholly dependent upon scientific investigation for the information which, joined to engineering practice, gives us the industrial practice which we now enjoy.

3. The Automobile Industry—85 per cent. Practically all of the material going into automobiles is manufactured by processes based upon scientific research, as for example, steels, special light weight alloys, rubber, special enamels and finishes, artificial leather, celluloid, etc.

4. Heavy Chemicals—80 per cent. The principal items under this head are the following: Sulphuric acid, nitric and muriatic acid, soda ash, caustic soda and bleaching powder, alums, etc.

5. Metals, Ferrous and non-Ferrous—50 per cent. This figure refers only to the extraction of the various metals from their ores and subsequent refining or alloying of them, ready for further manufacture.

6. Vegetable Oils and Fats—40 per cent. Including their refining and manufacture into soap, glycerine, edible compositions, etc.

7. Cellulose—25 per cent—Including the manufacture of bleached and finished goods, artificial silk, paper pulps, nitrocellulose (collodian guncotton.)

8. Rubber—25 per cent—While substantially all manufactured rubber is vulcanized, the greater part of the manufacture of rubber products is considered to be mechanical and not based on scientific investigation.

9. Ceramic Industry—12 per cent. Most branches of this industry existed in nearly their present degree of perfection in the Eighteenth Century or before. Scientific research has contributed to the manufacture of special glasses and the application of engineering and ingenious mechanical devices has improved and cheapened production of ordinary grades of glass. In general most ceramic processes may be regarded as having been perfected by accumulated experience and empirical knowledge. The manufacture of pottery, porcelains, glasses, bricks, terra cotta and cement have all been im-

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American Eagle Fire Ins. Co., New York, N. Y.
Alliance Insurance Co., Philadelphia, Pa.
Automobile Ins. Co., Hartford, Conn.
Ben Franklin Underwriters, Pittsburgh, Pa.
Boston Insurance Co., Boston, Mass.
California Ins. Co., San Francisco, Cal.
Camden Fire Ins. Ass'n., Camden, N. J.
Central States Fire Ins. Co., Wichita, Kans.
Citizens Insurance Co., St. Louis, Mo.
Columbia Ins. Co. of Jersey City, N. J.
Commercial Union Assurance, London, Eng.
Commonwealth Ins. Co. of New York, N. Y.
Connecticut Fire Ins. Co., Hartford, Conn.
Continental Insurance Co., New York, N. Y.
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Fire & Marine Underw't's, Hartford, Conn.
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Providence Washington Ins. Co., Providence, R. I.
Queen Insurance Co., New York, N. Y.
Reliance Insurance Co., Philadelphia, Pa.
Rochester Dept. Gt. American, New York, N. Y.
Royal Exch. Assurance Co., London, Eng.
Royal Ins. Co., Ltd., of Liverpool, Eng.
Scottish Union & Nat. Ins. Co., Edinburg, Scotland
Security Ins. Co., New Haven, Conn.
Springfield Fire & Marine Ins. Co., Springfield, Mass.
St. Paul Fire & Marine Ins. Co., St. Paul, Minn.
Sun Insurance Office, London, England
Svea Fire & Life Ins. Co., Gothenburg, Sweden
Union Assurance Society, London, England
Union Ins. Soc. of Canton, Hong Kong, China
World Fire & Marine Ins. Co., Hartford, Conn.

Complete details of the Oil Insurance Association may be obtained from your insurance agent or broker.

Among the purposes for which the Oil Insurance Association were organized are:

To enable oil operators to secure sufficient dependable insurance to adequately protect their interests;
To furnish property holders and those controlling oil business expert engineering and inspection service, so methods of insuring this class may be standardized, and efficient fire protective devices installed and properly maintained, thereby stabilizing the business to the point which will enable insurance companies generally to accept the class at fair cost and under equitable policy rates;
To make available the most business-like insurance arrangement for all oil companies.

OIL INSURANCE ASSOCIATION
H. M. Carmichael, Manager
209 W. Jackson Blvd. Chicago, Ill.

proved through research, but the above is considered a fair estimate.

10. Breadstuffs—7 per cent—Only recently has research contributed anything to the improvement of this industry.

Lowly Showing for Oil

11. Petroleum—less than 7 per cent. The present state of the petroleum industry, from a technical standpoint, is considered to be comparable to the state of the utilization of coal in 1800, prior to the development of the manufacture of artificial gas, coke and water gas.

The lowly showing for petroleum is generally admitted although in applied science great results have been shown in the last few years. However, petroleum is still used and regarded primarily as fuel, while scientific research promises to open up entirely new products of petroleum and new uses for present products.

It has been recognized that although many oil companies are spending a great amount annually on scientific development, the field is so broad and the necessity for research along purely fundamental lines so vital that this must be done through sources other than the companies themselves. An estimate of the amount being spent at present is impossible to obtain, but in the aggregate it would be substantial. However, this work is largely in the nature of applied science.

The present amount of money provided by the research fund initiated by John D. Rockefeller is $100,000 annually for a five-year period. There is little doubt but that this fund will be greatly increased through contributions as soon as a program is launched and additional funds required.

Industrial Reserch

Many large organizations in their industrial lines maintain their own research organizations, bearing the entire cost of such work. The following is a list of several well known American manufacturing concerns and the amount of money estimated spent by them for salaries alone in their investigations.

	Research Staff Tech.	Research Staff Non-Tech	Salaries
Barrett Co.	45	20	$ 206,500
E. I. du Pont de Nemours Co.	200	322	1,304,000
Eastman Kodak Co.	105	..	346,000
Gen. Chemical Co.	46	..	151,000
*Gen. Electric Co.	128	..	422,000
General Motors Research Corp.	253	..	834,000
Goodyear Tire & Rubber Co.	192	163	963,000
National Lead Co.	34	..	112,000
New Jersey Zinc Co.	34	..	112,000
Solvay Process & Semet Solvay Co.	53	5	184,000
Underwriters Lab.	51	..	168,000
Union Carbide & Carbon	70	..	231,000
U. S. Ind. Alcohol Co.	27	..	90,000
Am. Tel. & Tel. Co. and West. Elec Co. more than	..	..	4,000,000
Westinghouse Electric & Mfg. Co.	38	..	171,000

*Does not include machinists, glass blowers, electricians and clerks employed in the research laboratories costing more than $1,000,000 annually.

The above note referring to the General Electric Co. shows that to learn the total expense incurred by these companies for research, the above sums should be more than doubled, not to speak of the very large initial investment that would be required for a new undertaking. None of these companies launched into research on the scale above indicated, but grew into it from smaller beginnings as they found that it paid, that it was reasonable, worth while and justified.

Research Endowment

This article, which attempts to touch on what is being done by other industries as regards scientific research, may well close with the declaration of convictions issued by the special board of trustees of the National Academy of Sciences in Washington in its appeal for a National Research Endowment, as follows:

"The trustees of the National Research Endowment, recognizing that human progress depends in large degree upon research in pure science, declare their conviction:

"(1) That the United States, which already occupies a leading position in industrial research, should rank with the most enlightened nations in the advancement of pure science.

"(2) That it is wiser to make large expenditures for scientific research, thus advancing civilization, improving human welfare, conserving health, and saving countless useful lives, than to tolerate unnecessary suffering and then endeavor to alleviate it at still greater cost.

"(3) That research in all branches of the mathematical, physical and biological sciences should be encouraged, because of the intellectual and spiritual values of adding to knowledge and because the greatest advances in science and in industry often result from apparently useless abstract discoveries.

"(4) That scientists exceptionally qualified to widen fundamental knowledge through research are of such value to the nation that every effort should be made to facilitate their work.

"(5) That the overcrowding of educational institutions, and the consequent excessive demands of teaching and administration, have further reduced the limited opportunities for research previously enjoyed by the members of their faculties.

"(6) That the funds now available for the support of research in pure science in the United States are far below what our population, education and material resources demand.

"(7) That the National Academy of Sciences, enacted by Congressional charter, the scientific adviser of the Government, and composed of leading investigators in the closely interlocked and mutually dependent mathematical, physical and biological sciences, is peculiarly qualified to evaluate the needs of pure science in America, to stimulate its progress and to insure the widest use of funds provided for research.

"In view of these considerations, the trustees of the National Research Endowment, established by the National Academy of Sciences, propose immediately to secure adequate funds for the encouragement of research in pure science."

Special Board of Trustees

Those in attendance at the organization meeting of the Special Board of Trustees, appointed recently by the National Academy of Sciences for the fund, were: Secretary Herbert Hoover, chairman; Albert A. Michelson, president of the National Academy of Sciences; Gano Dunn, chairman of the National Research Council; Vernon A. Kellogg, permanent secretary of the National Research Council; Elihu Root, Col. Edward M. House, Cameron Forbes, Henry S. Pritchett, Dr. Robert A. Millikan, foreign secretary of the National Academy of Sciences; Dr. John C. Merriam, president of the Carnegie Institution of Washington; Owen D. Young, Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research; Dr. John J. Carty, vice president of the American Telephone & Telegraph Co.; Dr. William H. Welch, director of the School of Hygiene and Public Health of Johns Hopkins University; Prof. A. B. Lamb of Harvard University; Prof. Oswald Veblen of Princeton University; Dr. Thomas H. Morgan of Columbia University, and Dr. George E. Hale, director of Mount Wilson Observatory, Pasadena, Calif.

Other members of the fund's Special Board of Directors are Andrew W. Mellon, Charles E. Hughes, Henry M. Robinson, John W. Davis, Julius Rosenwald, Dr. James H. Breasted, director of the Oriental Institute of the University of Chicago; Felix M. Warburg and Prof. L R. Jones of the University of Wisconsin.

CONCESSION IN BOLIVIA

A British syndicate is reported to have obtained a concession of over 120,000 square miles in the Republic of Bolivia. Signor Roberto Villanueva, the Bolivian Consul General in London, has issued the following statement: "The Government concession is for 30,000,000 acres of agricultural and forest land, freehold in perpetuity, 10,000,000 acres of oil rights and 10,000,000 acres of mineral rights.

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The new Wilson Type S Welding Machine is another distinctive Wilson achievement in the development of electric arc welding. Its self-excited generator, its easy-to-set current, its easy-to-strike and easy-to-maintain arc, its fast work and its *rugged* and *simple* construction—these are some of the features that make Wilson machines the decided choice of welders in practically every industry. Various models include motor-driven, gasoline-engine driven and belt-driven machines in capacities from 75 to 250 amperes. Write for prices and full information. There is no obligation.

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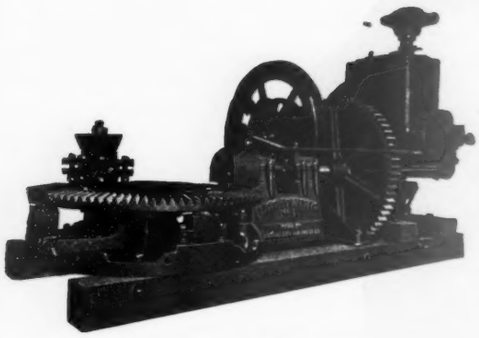

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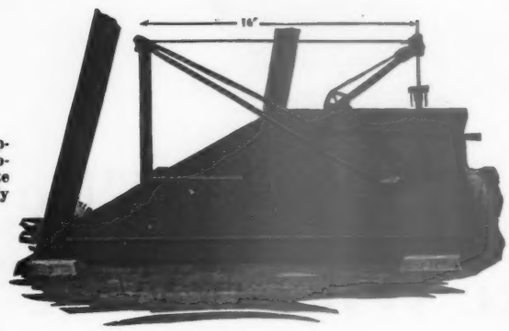

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The Lightning Wire Line Beam Hanger is scientifically designed and meets a real need. Handles a stroke 7' long.

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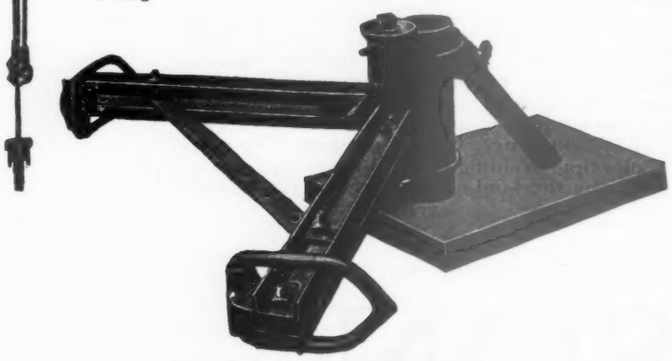

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EXPERIMENTS IN FURTHER RECOVERY FEATURE IN EASTERN FIELD IN 1925

By George Turnbull*
Oil Editor "The Derrick"

Low oil prices and the scarcity of good prospective territory made the past year a poor one in the Appalachian oil fields. New development was at a low ebb and were few. Several new pools were opened in Cumberland County, Kentucky, with good producers. The bringing in of the Tinsley Bottom pool in Tennessee and the completion of some real gushers there was one of the leading features. A new Big Injun sand pool in Henry district, Clay County, West Virginia, holds some promise.

From the standpoint of the mining and metallurgical engineer probably the outstanding feature is the flood method of recovering oil now in universal use in the Bradford, Pennsylvania and Allegheny, New York fields. Every year seems to increase the proof that it is the best known method at present for the recovery of oil in a territory where the wells have been producing for several score years and where the producing sand is especially suitable for this method of production.

Soda Solution

One new development was the recommendation of Government experts that a soda solution be introduced with the water. This method had been successful in laboratory experimentation. Some of the leading operating companies in the Bradford field have agreed to try this method in actual field work and have introduced the soda solution. No definite data on the results can possibly be known for some time. It requires more than a year to bring on the pressure, and 4 or 5 years more to determine definitely whether the use of the soda solution will prove successful.

Air pressure is being applied to some producing sands in the Appalachian fields. Recently, in Taylorstown district, Washington County, the Washington and South Penn Oil companies installed air compressor stations and are forcing the air into old wells, increasing their production two and in some cases three times. The air is forced through a 6-inch main line at a maximum of 250 pounds. At first the pressure was kept on during the night and the wells pumped during the day. Later it was found best to keep the air pressure on all the time. While the Washington and South Penn Oil companies are the first to try this method in Washington County, the results are so satisfactory other companies will probably follow suit. The Gordon sand has been found to respond with a greater increase in production after the wells have been put on air than any other.

*Before Petroleum division A. I. M. E. annual meeting, New York.

Flooding Increases Totals

During 1925, production in Pennsylvania and New York showed increases due mainly to the effects of the flood method of production in the Bradford and Alleghany fields. Gains were also shown in Ohio and Tennessee. Kentucky and West Virginia decreased. The crude output for the 2 years follows:

Field	1925	1924
Pennsylvania	7,802,000	7,529,000
Kentucky	5,850,000	6,000,000
Ohio (Central & Eastern)	5,165,000	4,774,000
West Virginia	5,770,000	5,924,000
New York	1,635,000	1,482,000
Tennessee	19,000	6,300
Totals	26,241,000	25,715,400

The average price of crude oil during 1925 was so low that in many eastern districts operations were conducted at a loss. Whether production in this territory will increase or decrease during 1926 depends entirely on the prices. The changes either way will probably not amount to a great deal as prospective producing territory is not easily to be found in fields which have been producing so long, in some cases as much as threescore years.

TURKEY JOINS RUMANIA, RUSSIA AND MEXICO IN NATIONALIZING OIL

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Feb. 20.—A condition of affairs is being developed in Turkey that may well cause the oil industry to take notice. According to news dispatches the Turkish Government has enacted a law by which the business of selling petroleum and its products within the Ottoman Empire is declared to be a monopoly of the Government to be executed by concessionaires authorized to take care of the entire domestic trade in these products.

In a response to a request made by the writer the State Department cabled our trade representative at Constantinople some days ago requesting information in respect to the report. A very complete and detailed report by cable was received here today as follows:

"Petroleum monopoly accepted by the Grand National Assembly January 25. Petroleum and benzine importation under Government monopoly. By-products for industrial purposes free. Sale price of petroleum and benzine based on cost price plus custom and consumption tax plus transportation and administration plus 8 piasters per kilogram monopoly dues. (8 piasters equal a little less than 5 cents of American money). Trade in petroleum and benzine produced locally free subjected to 8 piasters per kilogram monopoly dues. Appointment of officers and by-laws of monopoly by minister of finance.

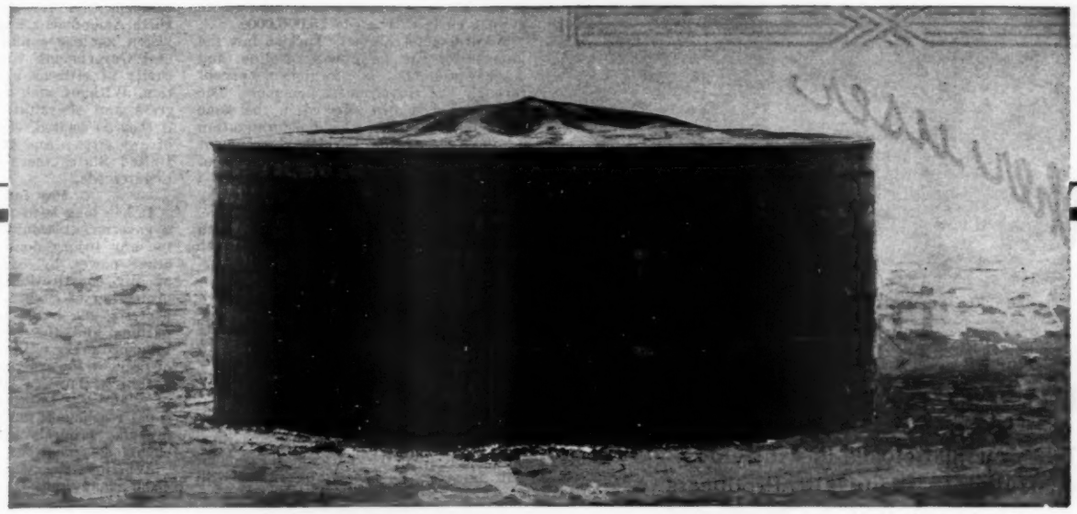
"Law provides that petroleum and benzine ordered two months prior to entering into effect of law will be bought by Government at previous price. Merchants are free to export provided they do not wish to sell their stocks to the Government.

"Custom, consumption and other dues refunded at port of reshipment. Merchants are compelled within a month from the issue of the law to submit statement of stocks on hand. If they fail to do so retailers and wholesalers are subjected to a fine of 10 and 50 Turkish pounds respectively. Stocks not reshipped or sold to the monopoly within prescribed period of delay subjected to the monopoly duty. Russian Aznet and Arcos and American and Turkish companies negotiating for a contract." (This last statement means they are seeking to become monopoly 'concessionaires.)

American Interests Affected

During the past two years legislation of the kind that has been enacted has been under consideration in the Turkish Parliament and our State Department has been fully conversant with its progress.

The largest American oil interest affected by this legislation is the Standard Oil Co., which dispatches indicate at once conferred with the minister of finance to determine the future course of the company, the property of which in Turkey, for all domestic sales purposes, is rendered valueless beyond such salvage of its plants as may be possible. The Russian Naphtha and Rumanian oil groups are also affected and they are endeavoring to ascertain whether the Turkish Government intends to buy the facilities of these oil companies or to see if they can operate the oil monopoly on behalf of the State. The value of the



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Yet this positive protection costs little if any more than haphazard measures.

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OIL TANK **OCECO** EQUIPMENT
SAVES EVAPORATION AND PREVENTS FIRE

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The
Rio Bravo Oil Company

THE year just closed has fully demonstrated to many Oil Producers the great economy that can be effected through the use of Sheffield Sucker Rods.

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SUCKER RODS

The perfected joint of the Sheffield Sucker Rod is as strong as the rod itself. Its special design permits of minimum displacement of metal in forging, thereby causing it to retain the high quality of the special analysis steel. Made in three sizes: 5/8", 3/4", 7/8" in both Box and Pin and Double Pin types.

Sheffield Sucker Rods may be secured direct from our plant or from all stores of the International Supply Company.

Sheffield Steel Corporation

Successors to

(THE KANSAS CITY BOLT & NUT COMPANY)

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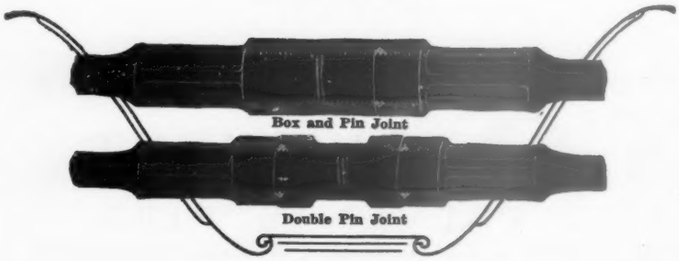
Manufacturers of New Billet Reinforcing Bars, Rail Steel Reinforcing Bars, Blue Annealed Sheets, Merchant Steel Bars, Merchant Iron Bars, Bolt and Nut Products, Sucker Rods, Pull Rods, Track Spikes, Forgings



Standard Oil investment in Turkey is estimated to be worth $3,500,000 and its annual business exceeds $5,000,000.

According to this new Turkish law the importation of kerosene, gasoline and other products is forbidden except through the Government monopoly. The sugar trade is also affected in the same way. There seems to be a determination on the part of the Turkish Government to throw this business into the hands of its nationals by the association of a group of 37 Turkish capitalists headed by the Bank of Turkey, who will combine, it is understood, to obtain the concession to handle the entire domestic Turkish oil sales industry.

May Cooperate With Russia

Private information received here suggests that the Turkish Government may cooperate with the Russian oil industry with a view to an arrangement by which Russian petroleum may largely, if not wholly, supply Turkish needs, but there is no verification of that report. What, if any, political significance may be attached to this transaction is not made clear. However, the Turkish Government will fix prices for the sale of oil and will change them from time to time.

This new move of the Ottoman Empire seems very much in line with the policy of Soviet Russia. It contemplates exercising much greater control over the oil industry than is now maintained by Rumania which has no monopoly in petroleum and its products, although the Rumanian Government has established State control of the industry, fixing prices and prohibiting export of the domestic production. In the case of Rumania, the Government recognizes the rights established by oil companies in that country so far as ownership is concerned but this ownership is to be exercised only under strict State control. After a period of years it is contemplated the Rumanian industry will drift into the hands of companies largely owned and controlled by its nationals.

In Turkey petroleum and sugar will be taxed by a tariff applying to the entire nation.

Including Mexico, Rumania and Russia, we now have three great oil countries that are definitely moving either toward the nationalization of their oil industries or confining them to their own citizens or to companies wholly controlled by their nationals. Turkey, potentially a great oil producing nation, has now joined this group. The same process for all practical purposes have been in progress within the British Empire where it has become difficult, if not impossible, for foreign companies to have access to oil production in British Dominions wherever there is a potential oil production worth while. The countries of South America and the United States are becoming conspicuous among the great oil producing nations that throw no obstacle in the way of foreign oil companies in the production of oil by the ownership of leases and to carry on any kind of oil industry they please under subsidiary companies with American incorporation. This applies even to states in which an alien cannot legally hold land.

Status of Americans

The exact status of an American company doing business in a foreign country becomes a matter of additional and special hazard if such restrictive legislation as is now being established in Turkey is to be further extended. Authorities on international law here are not inclined to view the action of the Turkish Government as confiscatory so long as that action merely renders useless plants and equipment and if there was no special obligation assumed by the foreign government for its establishment. So far as indicated the Turkish Government has given no indication that it intends to interfere with property of foreign corporations doing business in that country beyond taking their business from them by the establishment of a monopoly and the prohibition of importation except by that monopoly.

It should not be forgotten that governments have complete sovereign power over the property of their nationals and that in the United States, for instance, the Fourteenth Amendment to our Constitution prohibiting any confiscation of private property by the states without just compensation for its owners, and the Fifth Amendment, applying the same provision against confiscation by the Federal Government, constitute the sole security of citizens against such confiscation. Without such amendments the Congress and the State legislatures might, if they so desired, confiscate the property of any citizen and being a citizen of the United States there would be no power to intercede.

Pay for Injury

It has long been settled, however, that a government would be expected to pay for any injury done the citizens of another power by confiscation, regardless of any constitutional provision for the protection of such foreign citizens. Such protests are based upon the comity of nations and the propriety that should influence every nation to act with a sense of decency toward the foreigner domiciled within its borders whether in pursuance of a business interest or for purely personal reasons. It is, in fact, international law that property rights of the foreigner should be respected.

Whether the action of the Turkish Parliament and Government, rendering useless the facilities established by a foreign oil company, can evoke diplomatic intercession is not clear. It would depend upon what, if any, encouragement had been given by that government to the foreigners to locate there. Our Government has never undertaken to interfere in a transaction of its citizens in a foreign country based on contract. It has taken the view that the citizen must rely upon redress open to him in the courts or otherwise in that foreign country. However, the line is not clearly drawn respecting the cases that may or may not be the subject of diplomacy. The passage of retroactive legislation affecting property rights of our citizens, confiscation of rights of any kind established under some definite agreement with a foreign government, are clearly within the realm of diplomatic intercession.

The action by the Turkish Government suggests the propriety of caution by American commercial interests that undertake to establish themselves in a foreign country. It is doubtful whether it will be possible to avoid such risks as are now being encountered in Turkey so long as the law applies equally to the nationals of all nations. Our Government, for instance, would recognize no established right that might have been interfered with by a foreign liquor interest that theoretically at least lost a vast income by the destruction of its trade incident to the passage of the Volstead Act.

One of the worst features involved in a government monopoly is the destruction of the incentive to increase trade and placing the entire business on the level of a stupid government bureaucracy, the only object of which would be to obtain government revenue. The numerous methods adopted by the big oil companies for the extension of trade by teaching the foreigner new uses for petroleum products would largely be thrown into the discard.

PRISON FARM LEASE

AUSTIN, Tex., Feb. 20.—Lease by the State Prison Commission to Roxana Petroleum Co., subsidiary of the Dutch-Shell interests, of the Ramsey and Retrieve prison farms in Brazoria County for oil and gas prospecting, has been announced. The lease price is $44,928 for approximately 22,500 acres, the State retaining one-eighth royalty of oil and gas and royalty of 75 cents per ton on sulphur. The deal calls for drilling to start by July 1, 1927, on both farms, the corporation being held to drill at least one well on each farm, with a $2 rental per acre after the first wells.

EASTLAND PLANT FIRE

EASTLAND, Tex., Feb. 15.—Fire which broke out at the plant of the Consolidated Gasoline Co., a mile south of Eastland, caused damage estimated at $3,000 and seriously burned L. B. Cooper, an operator, who tried to extinguish the blaze.

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THE finest light ever developed for workers in the oil fields. Insures safety against fire and explosions. It is a powerful lantern, not a flash—projecting a 300 foot flood of brilliant light. It burns by the hour on two ordinary No. 6 dry cells. Batteries last up to a year in ordinary usage. Think of its economy!

It is made of sheet steel for tough wear. It is light but rugged—well constructed—will last a lifetime. It is ribbed for extra strength. It has a *durable* coat of vivid red baked enamel—making it an unusually attractive lantern. Nickeled trimmings.

It is scientifically designed for bright light. Reflector is triple silver plated. The bulb was especially designed for this particular lantern by the Mazda people. Lens is ground from select clear glass. All elements precisely adjusted according to Delta standards for powerful light.

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Besides Lanterns we manufacture high grade Automobile, Motorcycle and Bicycle Spotlights; Auto RoadLites; Electric Lanterns; Flashlights; Batteries; Headphones; Auto Ash Receivers.

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DELTA ELECTRIC CO.

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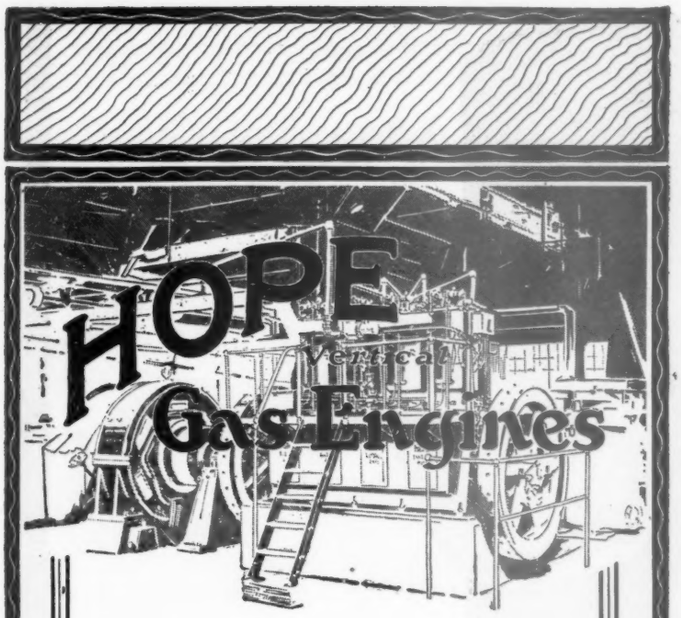

Compact, sturdy, up-to-the-minute, easily looked after, delivering power seemingly without effort, and always equal to the demands—there you have the Hope Gas Engine. It will give you the power you need, at least cost, month after month and year after year. Its dependability has been proved repeatedly, in the nearly 20 years it has been before the power-buying public.

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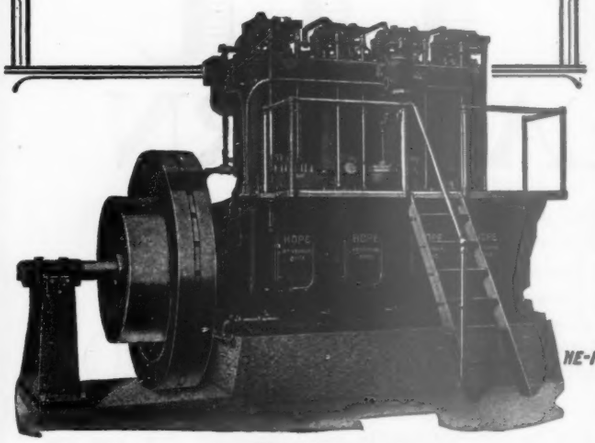


ENGINEERS CONTRACTORS

HOPE Engineering & Supply COMPANY

DESIGNERS MANUFACTURERS

MT. VERNON, OHIO, U. S. A.

HEAT PROCESS AIDS OLD OIL AND GAS DISTRICTS

(Continued from Page 62)

a result. In one case the pores are closed, in the other case the sand in which the obstructing material is fractures or exposes new surfaces on the sand in which the pores may be less obstructed or open. The irregularity of the action of nitroglycerin explains in many instances its success or failure. The steaming of a well, as it is practiced, only results in dissolving the inorganic salts and melting the obstructing "paraffin" from the pores of the sand. The effect of steaming is to change the physical state and location only of the obstructing material in the producing sand. The heat treatment has all of the advantages of the steaming and shooting processes and none of their disadvantages. In addition there is the practical result of increased oil production where both steam and shooting had been ineffective. The heat developed in the treatment is sufficient not only to melt the obstructing material, but also to remove it, in that the material will be decomposed at the high temperatures which prevail. There are always fractures in the producing sand but without any instances of fusion. These fractures are more extensive than those resulting from ordinary "shots" in the sand. The intensity of the heat makes possible more extensive penetration of the producing sand by the hot gaseous products of combustion.

In the practice of the process it is necessary to provide for: (1) Continuous feeding into the well of a combustible mixture of air and gas from the surface; and (2) Continuous removal from the well of products of combustion, or spent gases.

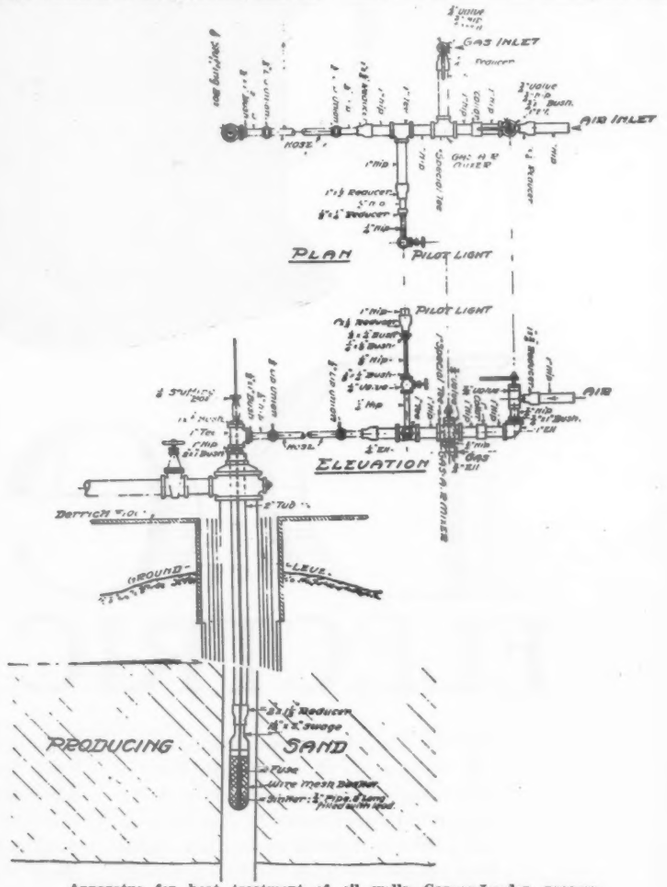
Equipment Used

The surface equipment includes two small compressors, one for gas and the other for air. The gas compressor should be of such dimensions that it can compress 200 feet of gas per hour to a pressure of 15 to 20 pounds. The air compressor should be of such dimensions that it can compress 3,000 feet of air per hour to a pressure of 50 to 75 pounds.

A pilot light is located between the mixing chamber and the entrance to tubing in the well and a small amount of the main supply of gas and air is permitted to burn in the pilot light so as to insure control of the mixture of air and gas as it burns in the well at the horizon of the producing sand. The combustion of the mixture in the pilot light entirely simulates the combustion of the gaseous mixture from the burner in the well.

Necessary valves to control the supply of gas and air are provided. An exhaust line, extending some distance from the well to remove all danger of fire at the derrick is included in the equipment.

A hand operated mandrel line for lowering the fusee is placed at a convenient point in the derrick. The fusee is lighted at the surface and is lowered to the determined horizon of the oil bearing sand. The flame from the fusee kindles the gas-air mixture at the mouth of the burner in the well. The mixture of air and gas is introduced into the well through 2-inch tubing at the bottom of which is located the burner tip. Around the burner tip there is a metal screen basket, the function of which is to provide an additional safeguard against backfiring.



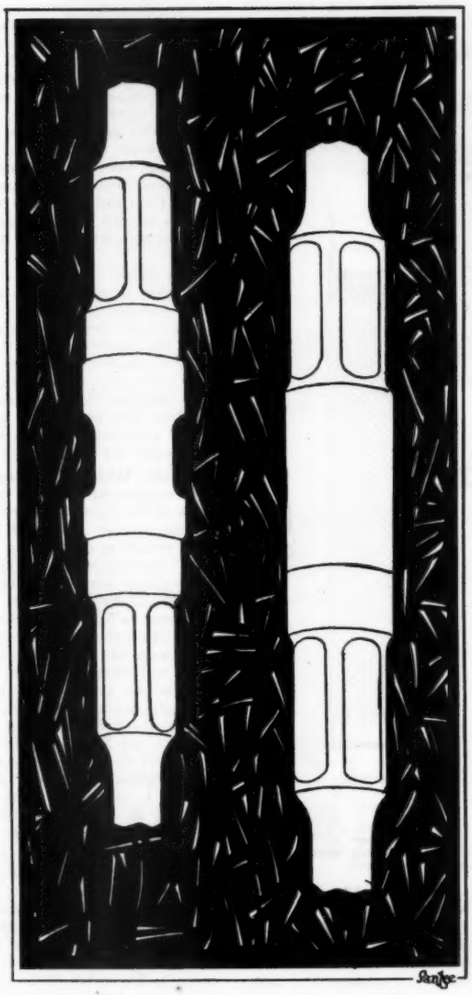
Apparatus for heat treatment of oil wells—Garner-Leyden process.

Method of Applying Heat

In treating a well by this method the first step is to obtain data on the performance of the well, both as to oil and gas. The tubing is pulled and the well bailed after which the bottom of the hole is explored to learn, as accurately as possible, the conditions. If the shot hole is at the bottom of the well and there is not too much caving, the well is treated as it stands. If the shot hole is above the pay or at its top, it is sometimes necessary to clean the well.

From the log of the well and measurement of the tubing, the depth of the well to the pay is ascertained, and from the log the thickness of the pay sand. This is one of the most important of the steps taken. In some instances the burner has

A Sucker Rod is as good as it is forged



YOU can't make a good sucker rod if you use poor forging methods — and the prime requisite for good forging is perfectly controlled heat —neither too hot nor too cold.

Sheffield Sucker Rods are forged in Pyrometer Controlled Furnaces.

An exact predetermined heat is reached and maintained throughout the operation — positive assurance that every Sheffield rod has exactly the right texture—neither soft nor brittle.

Pyrometer Controlled Normalizing Furnaces give the same exactness in relieving forging strains.

Every operation in the manufacture of Sheffield Steel Rods is carried out with the same exactness and attention to detail — by men who are experts in the production of steel.

And every Sheffield Rod delivers the goods in actual operation—(No Sheffield Sucker Rod has ever broken at the pin in actual service).

A Sucker Rod must stand up under severe strains—it will pay you to buy a good one.

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PARKERSBURG MACHINE CO.
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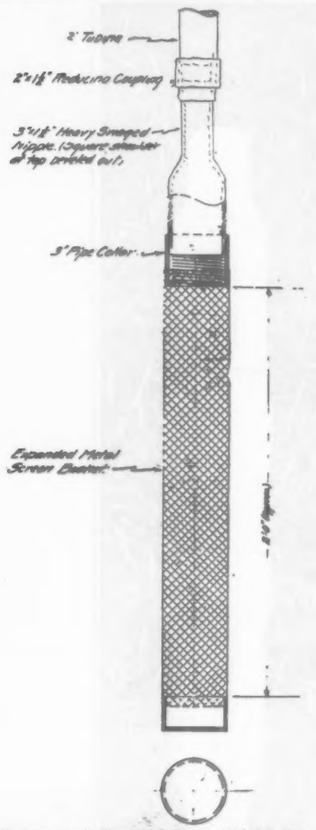
been located too high with the result that casing was melted.

With the information as to where the burner is to be located, it is then attached to the tubing and an additional check is made as to location of the burner by running the mandrel line inside the tubing. Then the mandrel line is pulled out and fusee is attached and run into the well outside the tubing, so that the fusee is suspended at the side of the metal screen basket. At this point the stuffing-box surrounding mandrel line is packed off, making it practically gas tight.

The fusee used is either a 10 or 20-minute one. In its work the Hope Natural Gas Co. uses fusees made especially


2" Tubing
2"x1¼" Reducing Coupling
3"x1¼" Heavy Swaged Nipple (Square shoulder at top drilled out)
3" Pipe Collar
Expanded Metal Screen Basket

Burner used in Clarksburg district in heating oil wells.

for it by the Unexcelled Manufacturing Co., Inc., of New York.

The fusee in the hole, the fuel is turned in. When the mixture ignites, it is known at the surface by the "pop" or puff at the end of the exhaust pipe leading from the well. From this time on, it is merely a question of keeping the proper mixture going into the well. The mandrel line is drawn up through the tightened stuffing-box far enough that the line will not be burned.

In practice, gas pressure is kept at 15 pounds or more and air pressure at 50 to 75 pounds. The intention is to burn about 200 feet of gas and about 3,000 feet of air per hour. Generally, the heat treatment is applied for about four hours. The fire is extinguished merely by cutting off the mixture.

A constant observation of exit vapors during the test will give significant signs of the action of the flame in the shot hole. On wells where very little oil or gas is present at the time of the test the exit vapors will not support combustion. In the process of sprawling the walls of the shot hole, there should be an increase in the flow of gas. This will give an interesting flame at the surface exit. The dead products of combustion mixed with new gas burns only when receiving sufficient oxygen which makes the flame remain at a considerable distance from the surface exit pipe. Checks on the volume of exit vapors and chemical analysis will govern the time of the test.

The flame at the end of the surface exit pipe is at first bluish-white. This then changes in color to yellow as the effect of the heat is obtained on the oil sand and presently the exit gases are carrying a substantial amount of vapors and even crude oil. From results which have been obtained it can be definitely stated that not only distillation but even cracking of petroleum hydrocarbons occur underground due to the heat treatment.

Results Which Have Been Obtained

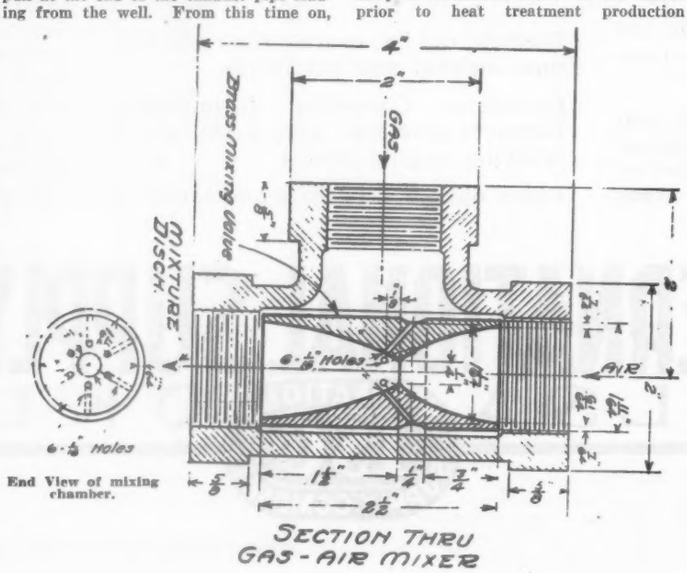
A number of wells in the West Virginia fields have been treated according to the process described. These wells have varied in depth from 2,000 to 3,200 feet. The following are typical of the results which have been obtained:

Case A—Production in this well had decreased to 5.1 bbls. in September, 1922. Heat treatment was used late in October. The well has produced from October, 1922, to December 1, 1925, a total of 423 bbls. or an average monthly production of approximately 11.4 bbls.

Case B—Before burning the well made 1.7 bbls. in November, 1922. The heat treatment was applied early in December, 1922. From December 1, 1922, to December 1, 1925, this well produced 410 bbls. or an average monthly production of approximately 11.7 bbls.

Case C—In November, 1922, this well produced 1.73 bbls. of oil. Heat treatment was applied early in December and during the past three years this well has produced a total of 204 bbls. or an average monthly production of 5.67 bbls.

Case D—This well was heat treated early in December, 1922. In the month prior to heat treatment production



End View of mixing chamber.

SECTION THRU GAS-AIR MIXER

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The Oil and Gas Journal
TULSA, OKLA.

BLACK'S BEST BEARS THIS MARK

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Pumping—Drilling — Compressor
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In All Fields

S E R V I C E

BETTER MATERIALS

FACT NO. 4

THE inner barrel of the perfected Spengler Core Drill is made of Shelby seamless tubing. It is polished on the inside to permit the core to move in freely, when cutting, and to slip out easily, when removing.

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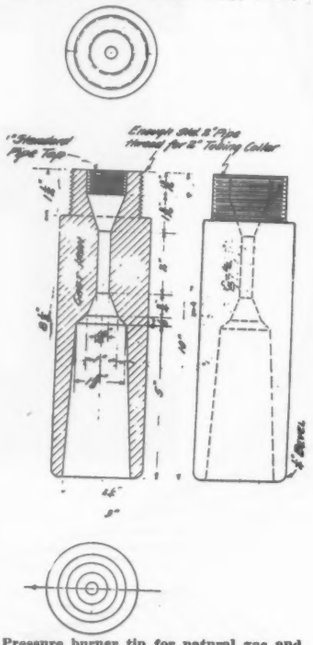
MAIN OFFICE AND PLANT
12901 SO. MAIN ST., STATION H. TEL. COMPTON 1153 & 1301
LOS ANGELES
TAFT, CALIFORNIA. PHONE 81W

R E S U L T S

amounted to 25.5 bbls. In the past three years this well has produced 2,045 bbls. or an average monthly production of 56.8 bbls.

Case E—Heat was applied early in April, 1923. In March the production was 16.15 bbls. From April, 1923, to December 1, 1925, this well has produced a total of 614 bbls. or an average monthly production of slightly more than 19 bbls.

Case F—Heat was applied to this well in July, 1924. The production in June was 26.58 bbls. From July, 1924, to



Pressure burner tip for natural gas and air built for internal heat.

December 1, 1925, production from this well has amounted to 1,234 bbls., or an average monthly production of 72.6 bbls.

In the foregoing cases no account has been taken of the increased gas production from these wells. Suffice it to say, however, that in every instance the gas production has been materially increased. Records will be compiled later showing the magnitude of the increase in gas production.

The experimental and development work in connection with the Garner-Leyden heat treatment process has been under the direction, and with the cooperation, of the Standard Development Co., a subsidiary of the Standard Oil Co. (New Jersey.)

CENTRAL WEST

(Continued from Page 56)

looking forward to the early resumption of activities within a short time.

Joe S. Young, Jr., and others' second well, 200 feet from the south line and 600 feet from the east line of the F. Steorgan, in the northeast quarter of Section 12, Wabash Township, is credited with a flush of 18 bbls. with sand topped at 1,412 feet and drilled 14 feet in. Same firm's test on the northeast corner of the J. W. Price heirs, in the southwest quarter of Section 2, was a duster at 1,612 feet. Risley and others' No. 1 well, 250 feet from the south line and 1,200 feet from the east line of the L. G. Stillwell, in the southeast quarter of Section 12, is reported at 10 bbls., with top of sand at 1,414 feet, and to a total depth of 1,428 feet.

Mayhugh and Skidmore's third venture, 200 feet from the south line and 600 feet from the east line of the John Kogan heirs farm, in the northwest quarter of Section 1, reports a production of 15 bbls. with sand at 1,390 feet and total depth 1,410 feet. Karnes and others' No. 1 Jordan was reported at 75 bbls. but is much smaller, as actual gauge was never reported.

In the northeast quarter of Section 6, northeast of the discovery well on the Stillwell, the hope Oil Co.'s third venture in the southwest corner of the W. M. Banks farm, showed 5 bbls. with top sand at 1,368 feet and drilled 7 feet in. Ellison and others' test on the southeast corner of the J. W. Price estate, in the southeast quarter of Section 14, and south of Allendale, is reported dry at 1,620 feet.

The Silurian Oil Co.'s second test, 600 feet from the south and west lines of the Mrs. J. H. Cisil farm, in the northeast quarter of Section 24, 2 miles south of Allendale, struck the top of the Bridgeport shallow sand at 1,093 feet and found the oil pay at 22 feet in, the well doing 20 bbls. flush.

The Mahutska Oil Co.'s fourth well, 1,000 feet from the west line and 200 feet from the east line of the J. F. Stillwell, in the northeast quarter of Section 12, was dry. Andrews and Ballards' second test in the southwest corner of the Catherine Kaiser, Section 6, Wabash Township, pumped 8 bbls. Top of sand at 1,410 feet and total depth 1,425 feet.

Phipps and Blooser's second venture in the northwest corner of the J. H. McClain farm, in the northeast quarter of Section 36, was at 1,550 feet. Hartman and others found one of the same kind in a test on the northeast corner of the Jesse Cisil farm, in the southeast quarter of Section 2, at 1,450 feet.

Other Illinois Wells

In Sandoval Township, Marion County, Alspach and others' test in the northeast corner of the Marion County Coal Co.'s lease, pumped 3 bbls. at a depth of 690 feet.

Thomas Stewart's third venture, 300 feet from the north line and 600 feet from the west line of the B. F. Bailey, in the northwest quarter of Section 13, Johnson Township, Clark County, showed a flush of 16 bbls. at 540 feet.

In Honey Creek Township, Crawford County, the Ohio Oil Co.'s No. 3, in the southwest corner of the I. H. Miller farm, Section 31, pumped 14 bbls. at 992 feet, and the Selby-Cisler Producing Co.'s No. 27, on the Claudie O. Reuville farm, Section 36, pumped 1 bbl. at 991 feet.

The Ohio Oil Co. pulled out and abandoned No. 5 on the W. B. Gillespie, Section 14, Lawrence Township, Lawrence County. This company's No. 6, on the P. E. Van Way, Section 31, Dennison Township, is reported making a fair showing, which will bring about more active work in the vicinity of Jenner's Corner.

Central Ohio

The only oil well of note reported from the Central Ohio Field was the East Ohio Gas Co.'s No. 5 J. F. Forgy farm, Section 9, Hardy Township, Holmes County, and credited with 30 bbls. flush. Drilling work is almost at a standstill in all parts of the central Ohio area on account of the winter's deepest snow, the heaviest for a number of years.

The Ohio Fuel Gas Co. has drilled two new gas wells in the Columbia Township, Lorain County, area, both small. One is on the W. C. Jasper 90 acres, Lot 33, which was shot with 20 quarts and the other on the L. and J. Sabin farm, Lot 48.

C. W. Nuzum's test in the southwest corner of the Edward Burke 80 acres, Section 24, Carthage Township, Athens County, is a light gas well in the second Cow Run sand.

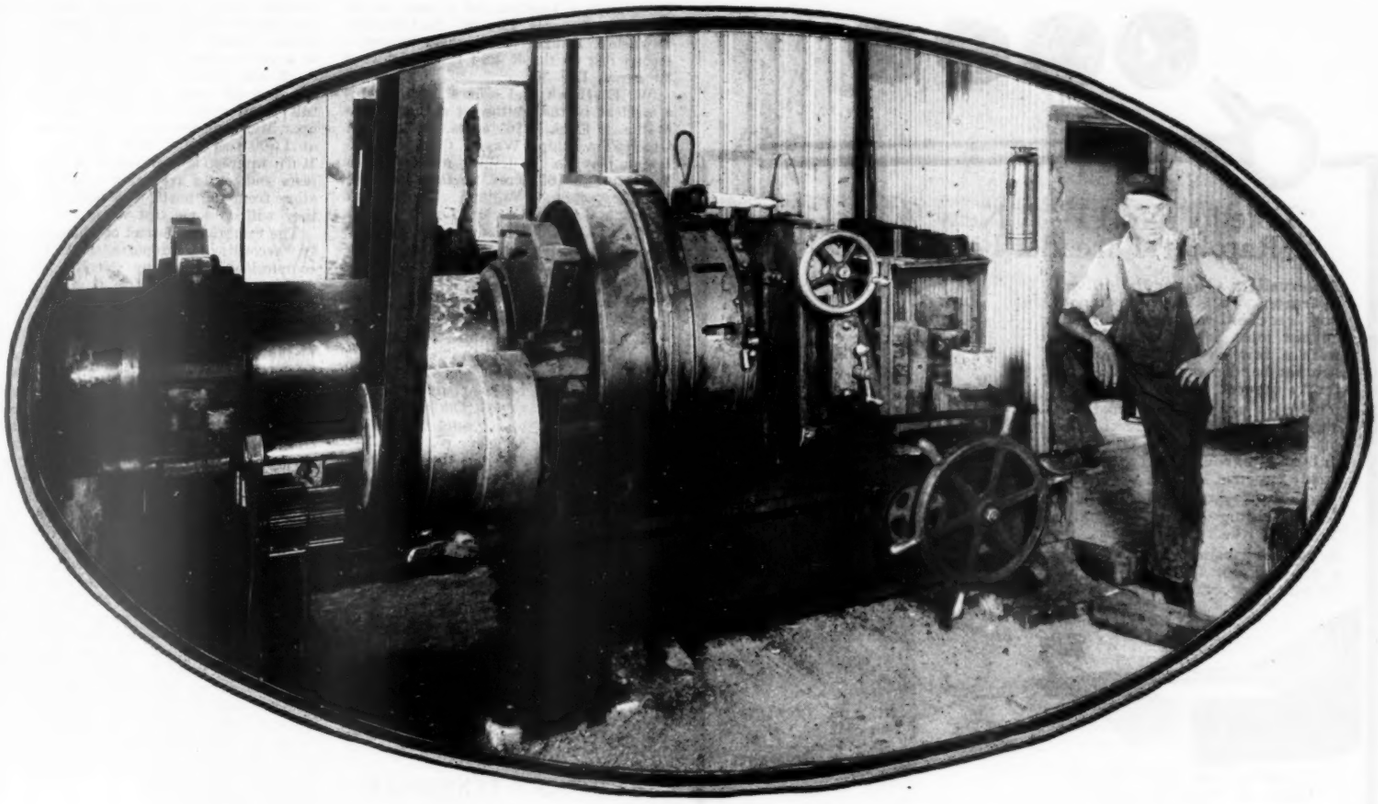
In Dover Township, Cuyahoga County, near Cleveland, McGrath and others' test on the northwest corner of the C. Reep 20 acres, Lot 19, proved a duster.

New Work Under Way

The Klise-Eckstein-McCann Co. has started the drill at a second test on the S. Sponsler 139 acres, Lot 100, Sullivan Township, Ashland County. The Logan Gas Co. is drilling a test on the Frank Firestone 80 acres, Section 27, Hanover Township, same county.

Hulse & Kundtz, Cleveland contractors and operators, made a location for a second test on the southwest corner of the Frederick Baker 53 acres, Section 24, York Township, Medina County.

The Logan Gas Co. made a location for a purely wildcat venture, 1,500 feet from the north line and 500 feet from the west line of the A. H. Atkinson 80 acres, Section 3, Ridgeville Township, Lorain County. In Avon Township, the Edson



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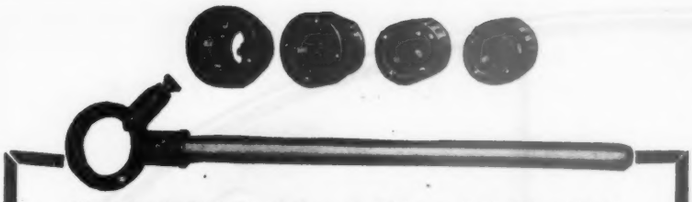

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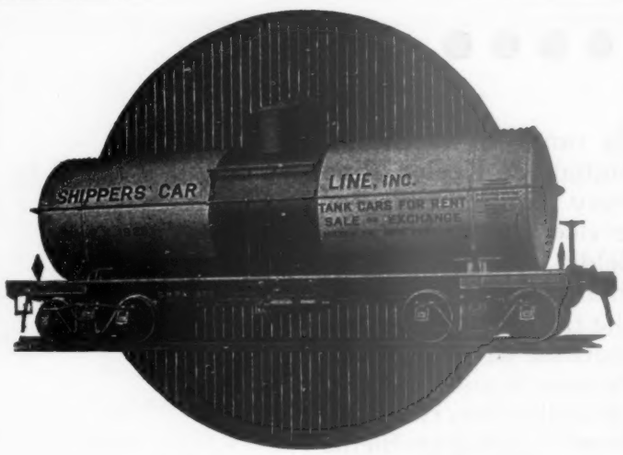

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Co. staked a location for a test on the J. Miller 39 acres, Lot 26. In Columbia Township, Daugherty Brothers located a second test on the E. and E. Churchwood 30 acres, Lot 36.

W. E. Hawk and others have started a wildcat in the southwest corner of the William Funk 116 acres, Section 6, Green Township, Wayne County. The Logan Gas Co. is drilling a test on the W. Rathbun 165 acres, Section 34, Chester Township. William Denny and others staked a location for a test on the southeast corner of the T. A. Morrow 80 acres, Section 13, Cannan Township, and in Milton Township, same county, the Logan Co. made a location for a test on the D. W. Hemming 85 acres, Section 19.

In Holmes County, Prairie Township, the Pure Oil Co.'s fourth well on the W. H. Miller, Section 18, is showing for a very light oil well unless a shot makes an improvement. The Empire Gas & Fuel Co. located a second test on the southwest corner of the W. H. Miller 159 acres, Section 9, and the East Ohio Gas Co. located No. 6 on the northeast corner of the Wayne F. Kendall farm, Section 17. In Hardy Township, the East Ohio Gas Co. set a stake for a test on the southwest corner of the Christian F. Schlaby and others' 100 acres, Section 19, and a second location on the southeast corner of the Harvey Bell 100 acres, Section 29. The East Ohio Gas Co. is preparing to drill a test on the Charles Hammondtree 116 acres, Lot 22, Kilbuck Township. In Paint Township the Logan Gas Co. set a stake for a test on the Emanual M. Miller, Section 6, and the Ohio Fuel Gas Co. located a test on the York Weaver 100 acres, Section 31, same township.

KENTUCKY-TENNESSEE

(Continued from Page 56)

line as soon as weather conditions will permit. On the south side of the line, Clay County, Tennessee, has been getting the most active play of any county in that State. Many congested pools will eventually be found in Clay County that may prove as productive as the Tinsley's Bottom Pool, which is producing close to around 3,000 bbls. per month, although new productive wells must be drilled there from time to time to maintain the production. The field now has good pipe line facilities and there is no reason why a large amount of wildcatting should not be done with the advent of summer. Other counties adjoining Clay must not be overlooked.

Morgan County is another area that must not be overlooked. The history of this county shows that the Sun Oil Co. drilled in the summer of 1917 a well on the Doctor Jones farm at Sunbright to a depth of 1,700 feet, striking gas and some oil. About this time it got into litigation through a misunderstanding between the owner of the land and the operators. The well was tied up in court and ran wide open for three years; the drillers having removed their machinery in the meantime. At the end of that time the court gave Doctor Jones custody of the well and he proceeded to cap it, and the gas was piped to different houses and stores and used for light and fuel in the little town of Sunbright. When first capped it registered 132 pounds rock pressure to the inch, and in the summer of 1922, the gauge was again put on the well to test the pressure for the satisfaction of some Oklahoma people and it then registered 182 pounds, showing a gain in those years after being used for fuel, light and other purposes, which is a little out of the ordinary for a gas well.

In the summer of 1924, the Russell Producing Co. started drilling on a large acreage with fairly good results, which caused much interest in that section of Morgan County. This company continues drilling, working their territory to the south and west of the field. Progress in drilling the Glades well, 5 miles west of the Russell Field, is rather slow. No. 1 was ruined in shooting, and No. 2, down about 1,200 feet, struck some gas and oil with fairly good indications, and is now drilling deeper. The Summers well, directly west of Sunbright, drilled by the Roach Creek Coal & Lumber Co., struck a heavy flow of gas at 1,200 feet, so much so that the owners had to pipe it off and burn it. Again at 1,250 feet, gas and oil were encountered; a bailer full of oil every two hours was brought up. More oil and gas were encountered at 1,300 feet, and still drilling deeper. Much interest is manifested in these two tests and leases are being taken by operators from the north and east, who state they will do some test work.

The Sunbright district of Morgan County, according to reports, now has six completions, drilled by the Russell Producing Co. This field is 6 miles northwest of Sunbright and the first well came in on October 26, 1924, drilled in by the Russell Producing Co. on the Drake farm, known as No. 1 Drake and reported at 25 bbls. flush at 1,140 feet. No. 2 well came in February 27, 1925, with about the same flush production and about the same depth as No. 1. At this time the Russell Producing Co. put in a pipe line to the railroad at Hoffman and started drilling with two outfits. No. 3, less than half a mile directly east of No. 1, was brought in at about 1,450 feet, producing 25 bbls. flush. No. 4, known as the Neal well, to the southeast, was finished at about 1,400 feet with a flush of 5 bbls., accompanied with enough gas to flow the production. No. 5, north of No. 4, was a small stripper. From the first four wells the Russell Producing Co., according to reports, shipped eight tank cars of oil from its loading racks at Huffman during September. After No. 5 was finished the production amounted to around 3,000 bbls. during October. No. 6, on the northeast end of the structure, came in at 1,483 feet on November 16, making 3 bbls. naturally, it being the largest producer out of the number drilled.

Kentucky Oil Runs

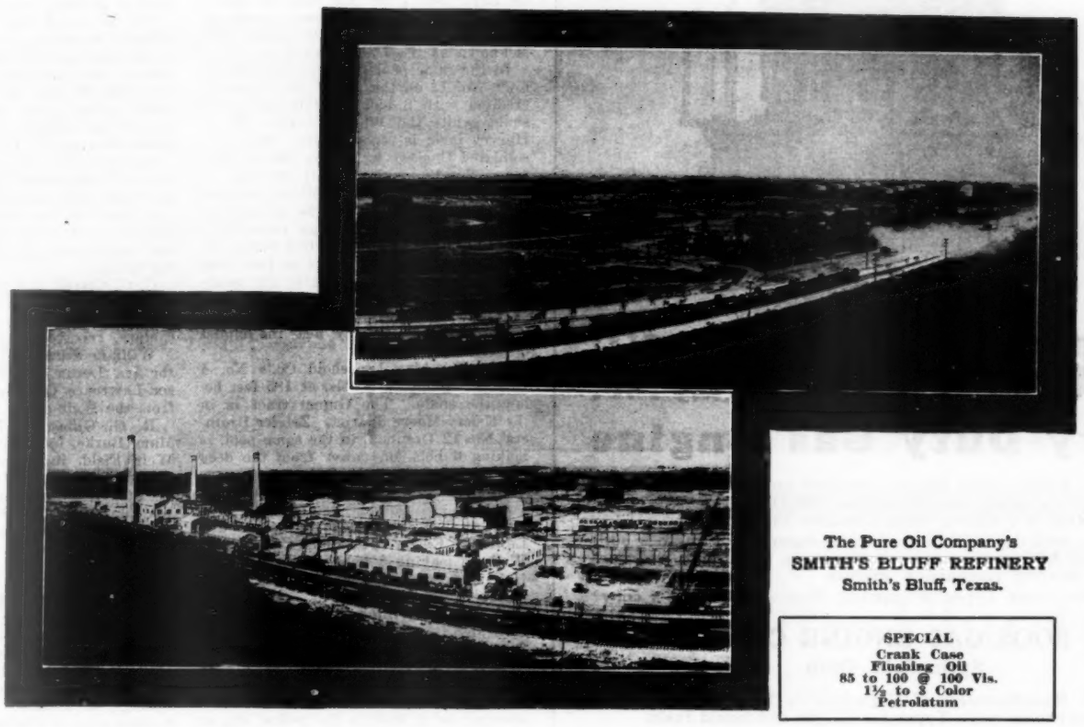
During the month of January 353,047.54 bbls. of crude oil were run through the major pipe lines in Kentucky. The eastern division led with a total run of 245,215.67 bbls. This crude was purchased by the Cumberland Pipe Line Corp. and run as follows: Week ending January 9, 63,940.44 bbls.; week ending January 16, 57,683.25 bbls.; week ending January 21, 61,736.54 bbls.; week ending January 30, 61,855.44 bbls. The grand total for the eastern division does not include the runs made on January 2, which were credited to the previous month's report.

Pipe line runs during the month of January in the western division amounted to 107,831.87 bbls., a gain of 2,640.09 bbls. when compared with December figures. The runs were distributed by counties as follows:

	Runs	Inc.	Decrease
Warren	24,470.60	1,602.56	.....
Barren	24,297.76	.....	1,282.84
Owensboro dist.	22,952.72	2,112.37	.....
Allen	19,639.92	959.64	.....
Cum.-Monroe	4,627.58	.....	759.96
Hopkins	1,042.64	.....	97.13
Clinton	553.32	553.32	.....
Simpson	181.77	.....	450.34
Logan	65.56	2.47	.....
January runs	107,831.87	5,230.36	2,590.27
Dec. runs	105,191.78		
Difference	2,640.09		

Western Division

In the western division of the Kentucky Field, operators are not undertaking much new drilling at this time and will not until late in the spring unless further advances are made in the price of crude. In the southern portion of the field in Warren and Allen Counties operators are planning to do some deep tests during the current year in hopes of finding a deeper pay sand, realizing that the more shallow producing sand will not be long-lived, although very productive for a time, and deeper producing sand will have to be discovered to assure continued activity. Some deep pays have already been found in parts of the two counties, but a still deeper formation will be sought after. There are still possibilities of finding commercial production in the Trenton Rock at less than 2,000 feet, a depth where this formation was encountered some few years ago to the west of Bowling Green along the Casper River. This formation in Kentucky is called the First



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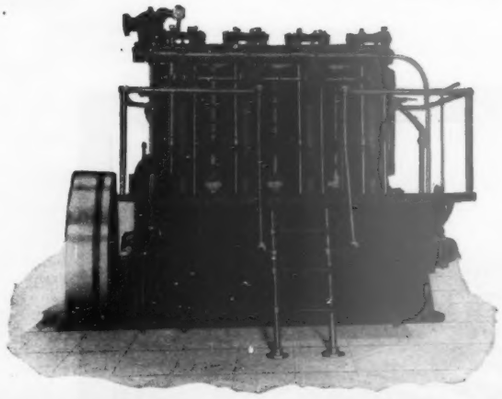

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Barren County

The find by the Glasgow Oil & Refining Co. of a 25-bbl. flush well in its No. 2 on the White farm, along Knob Road, has caused some excitement in Glasgow, owing to its closeness to the thriving little city. No. 1 on this lease is also a producer and serves to show a continuation of the pool near the city limits. This is known as the Hall-Baker Pool.

In the same pool the Consolidated Gas Co.'s No. 12 on the H. W. Duff farm is credited with 9 bbls. at 170 feet below shale, while the Wood Oil Co.'s No. 2 Harvey farm is reported dry. The Consolidated Gas Co. is drilling No. 14 Duff farm, No. 13 making a fair showing.

The Richardson Farm Oil Co. brought in its third producer on the Richardson farm, estimated all the way from 15 to 40 bbls., in a sand at 50 feet below the shale. The three producers on this farm are reported to be pumping in the neighborhood of 100 bbls. a day. The Richardson tract is 4 miles out of Glasgow on the Jackson Highway, near the hamlet of Haywood.

The Houchins Leasehold Co.'s No. 4 Gumm is pumping 3 bbls. at 185 feet below the shale. The Gumm tract is in the Emery-Moore district. Zeigler Brothers' No. 12 Drennon, in the same pool, is making 6 bbls. on power from the deep pay at 185 feet under shale.

In the Gorby sector, the Hiland Oil Co.'s No. 13 Cassiday started with 12 bbls. at 180 feet below the shale and Lewis J. Emery, Jr., Sons Co.'s No. 2 Wells is making 3 bbls. on the pumping jack from the sand at 180 feet below shale.

Drilling Wells

Ziegler Brothers, Scott & Hise's No. 6 Bradford is being cleaned out after a shot; Ziegler Brothers' Nos. 13 and 14 Grinon, drilling at 160 and 135 feet, respectively; Russell Oil Co.'s No. 1 Page, showing for a well in the yellow cap at 535 feet; Consolidated Gas Co.'s No. 13 H. W. Duff, showing for 5 bbls., accompanied with a flow of gas; Helper & Gorby's No. 6 Chamberlain, drilling at 180 feet; McGlothlin No. 4, being drilled by Porter and others, showing for a fair pumper; Lew J. Emery, Jr., Sons Co.'s No. 3 Richardson and No. 3 Davidson are both in and will be tested the coming week.

Owensboro District

Renewed interest is being shown in the Owensboro Field since the completion of the Guenther-Gant well in the Swope area, about a half mile north of the Ellis coal mine, in Ohio County, and operators in that section are planning quite an active drilling campaign. The Swope Pool, opened up about 18 months ago by the Pennsylvania-Indiana Syndicate, is now one of the leading producing pools in northern Kentucky. The production is found in the Barlow sand, a true sandstone, and has good staying qualities. During the past week in this area C. E. Daugherty finished his eighth successful well on the Lucinda Crowe lease for 25 bbls. in the Barlow sand.

At Colyer Station, the Leeper Oil Co.'s No. 6 Susan Colyer is dry in the Jett sand.

A simiwildcat drilled by Bolling & Loman on the George Midkiff, 1,500 feet northwest of the Midkiff discovery well drilled by the White Plains Co., has been plugged at 841 feet in the Barlow sand.

Warren and Allen Counties

The recent 25-cent raise in crude prices has not stimulated drilling activity in Warren or Allen Counties, and no resumption of work is looked for until early spring.

In the Davenport Pool, Warren County, the Wood Oil Co.'s No. 12 Grimes tested out at 5 bbls. at 1,126 feet, approximately 98 feet below shale. T. A. Sheridan's No. 3 Georgianna Davenport is pumping 5 bbls. at 1,150 feet.

In Allen County, the Keystone Security Co.'s No. 17 Edmonds is dry at 449 feet; Cyphers & Harley's No. 2 Lon Oliver, 3 bbls. at 260 feet; J. J. Sayen's No. 18 Susan Moore, 5 bbls. at 340 feet.

McMullen & Reagle's initial trial on the John Pierce farm, near Pilot Knob, in Simpson County, is reported good for 5 bbls. from the shallow Mississippian Lima. This completion extended production several locations to the northeast of other developments.

Eastern Division

Several wells were completed in the eastern division, four producers, with a flush of 24 bbls., two dry and one gasser.

The Standard Oil Co. of Kentucky's wildcat, 10 miles southwest of London, in Laurel County, around which much interest was centered, failed to make a favorable showing at 710 feet, at which depth earlier tests showed a probable commercial producer. The well was drilled deeper through the Corniferous, in which a showing was found, and at last reports was drilling around 1,200 feet. There is some new work being planned and numerous tests are expected to be drilled in Laurel County, with expectations of opening a new producing area in southeastern Kentucky.

C. C. Carroll and the Fowler Brothers Petroleum Co. drilled a second test on the Carter Sparks heirs farm, in Jackson County, reported good for one barrel.

William Stone and others' No. 10 on the Ira Lester, in District 33 of Johnson-Lawrence Counties produced 8 bbls. from the Weir sand.

R. G. Gillespie's No. 6 well on the Mary Burke, in District 29 of the South Weir Field, in Johnson-Magoffin Counties, pumped 8 bbls. from the Weir sand.

The only completion reported from the Ida May Field in District 36 of Lee-Owsley Counties was the Combs Development Co.'s test on the Logan Combs, estimated at 7 bbls.

On the left fork of Beaver Creek, near Drift, the Ohio Fuel Oil Co. drilled in a nice gas well on the Elkhorn Coal Co.'s lease in Floyd County.

Tennessee

Clark and others drilled in a gas well at a second test in the vicinity of Double Springs, in Putnam County, Tennessee, 6 miles west of Cooksville.

Pat Smith is reported to have a showing of oil in his wildcat on the Alvin York farm, in Fentress County.

Kentucky Oil Tax

Report comes from the State capital at Frankfort, Ky., that the State's production tax on crude oil netted the treasury $11,470 during December. Production for the month was 506,855 bbls., valued at $1,140,774.07, on which the production tax for the State Treasury is 1 per cent. Production by counties follows: Allen, 18,526 bbls.; Barren, 25,802 bbls.; Bath, 1,823 bbls.; Boyd, 84 bbls.; Cumberland, 4,813 bbls.; Daviess, 1,464 bbls.; Elliott, 549 bbls.; Estill, 28,560 bbls.; Floyd, 613 bbls.; Hancock, 2,556 bbls.; Hopkins, 1,139 bbls.; Jackson, 72 bbls:; Johnson, 55,211 bbls.; Lee, 130,271 bbls.; Logan, 63 bbls.; Magoffin, 72,654 bbls.; McCreary, 169 bbls.; Menifee, 145 bbls.; Monroe, 1,194 bbls.; Morgan, 676 bbls.; Ohio, 16,614 bbls.; Owsley, 941 bbls.; Powell, 15,405 bbls.; Russell, 396 bbls.; Simpson, 632 bbls.; Warren, 33,652 bbls.; Wayne, 10,491 bbls., and Wolfe, 3,437 bbls.

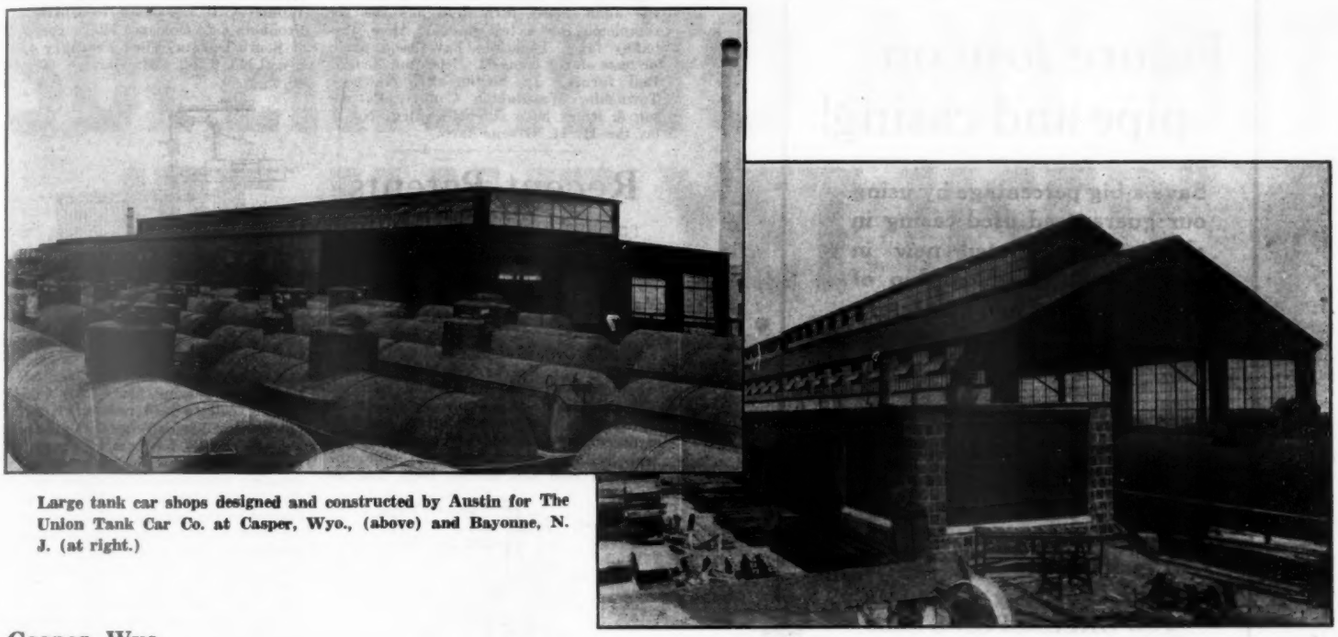
EASTERN FIELDS

(Continued from Page 52)

ry County, John Denman & Son drilled No. 18 on the Annie and Mary McGowan farm into the Berea grit, good for 10 bbls. a day. In the northeast quarter of Section 18, Sharon Township, Noble County, Charles Nott and others have a duster in the Macksburg 700-foot sand at a second test on the H. W. Boyd farm.

Drilling and Starting Tests

In Guernsey County, the Ohio Fuel Gas Co. is drilling and starting quite a little new work. This company is drilling at 2,600 feet at a test on the C. M. Donley farm. The test on the N. E. Brayden farm is drilling at 1,400 feet and a test on the W. M. Knight farm at 2,800 feet. Drilling has been suspended at 2,080 feet on the W. M. Knight farm. The test on the Frank Ankrum farm is down 3,287 feet. The rig has been completed for a second test on the James Mercer farm. The same



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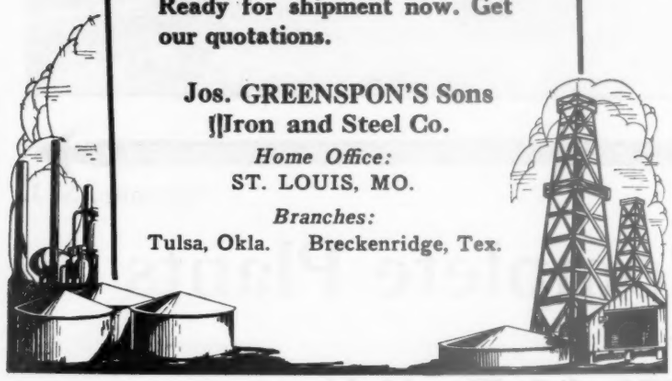

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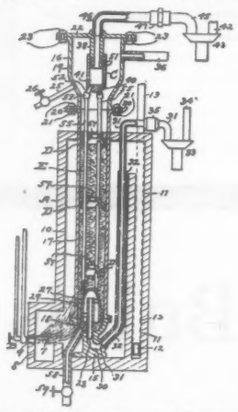
company has started to drill a test on the John Speer farm and has the rig completed for a test on the Alice Mahaffey farm. Locations have been made for tests on the Anna M. Jirles and George Bell farms. In Section 27, Newport Township, Washington County, Patterson & Riggs have started to drill No. 5 on the H. H. Greene farm.

Recent Patents

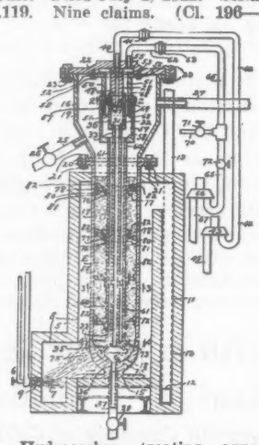
1,566,416. Apparatus for Treating Hydrocarbons. Fred G. Niece, Cleveland, Ohio, assignor to the International Holding Co., Cleveland, Ohio, a corporation of Ohio. Filed July 17, 1922. Serial No. 575,617. Eighteen claims. (Cl. 196—118.)

4. Apparatus of the character indicated comprising a closed receptacle which has a vapor outlet and contains a molten body penetrable by hydrocarbons and not vaporizable at the required hydrocarbon cracking temperature, an endwise movable upright feed pipe discharging into said molten body, and an



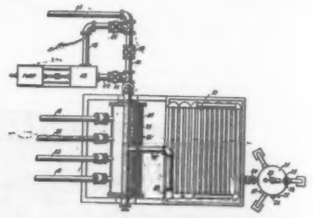
upright feed pipe arranged internally of and spaced from the first mentioned pipe and movable upwardly during upward movement of said first mentioned pipe.

1,566,341. Apparatus for Treating Hydrocarbons. Fred G. Niece, Cleveland, Ohio, assignor to the International Holding Co., Cleveland, Ohio, a corporation of Ohio. Filed July 1, 1922. Serial No. 572,119. Nine claims. (Cl. 196—118.)



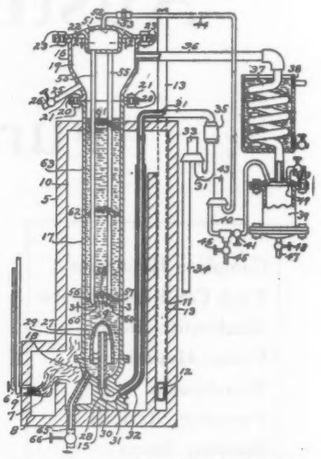
2. Hydrocarbon treating apparatus comprising a hydrocarbon cracking receptacle which has a vapor outlet, a molten body contained in said receptacle and penetrable by hydrocarbons and not vaporizable at the desired hydrocarbon cracking temperature, an endwise movable upright cylinder arranged at the upper portion of said hydrocarbon cracking receptacle, means for supplying fluid under pressure into said cylinder from a point externally of the molten body containing receptacle, a feed pipe independent of said pipe and connected cylinder for supplying hydrocarbons into the molten body, said pipe extending into and communicating with the molten body.

1,568,400. Apparatus for Cracking Hydrocarbon Oils. Carbon P. Dubbs, Wilmette, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed February 4, 1925. Serial No. 6,782. Six claims. (Cl. 196—99.)



1. In an apparatus for converting oil, the combination with an elongated heating coil, of a furnace within which said coil is disposed, an enlarged reaction zone, means for passing heated oil from said heating coil to said reaction zone, a dephlegmator disposed away from said heating coil, means for passing generated vapors to said dephlemator, means for withdrawing unvaporized oil from said reaction zone without permitting entrance thereof to the heating coil, a conduit leading from said dephlegmator, a pump communicating with said conduit, a communication between said pump and said heating coil for introducing reflux oil to the coil under pressure, and means for admitting reflux oil from said dephlegmator continuously to the inlet of said heating coil in the event said pump is shunted.

1,565,326. Art of Cracking Hydrocarbons. Fred G. Niece, Cleveland, Ohio, assignor to the International Holding Co., Cleveland, Ohio, a corporation of Ohio. Filed July 7, 1921. Serial No. 482,964. Ten claims. (Cl. 196—70.)



1. In the art of cracking hydrocarbons, a process which comprises subjecting to a condensing temperature hydrocarbon vapors and gases passing from a hydrocarbon cracking chamber, feeding other hydrocarbon into a molten body through an inner chamber in said molten body, and while hydrocarbon is discharged from said inner chamber into said molten body effecting the subjection, to the heat of and within said molten body, of hydrocarborn gases and vapor remaining uncondensed during the subjection of the first mentioned vapors and gases to the aforesaid condensing temperature.

DEATH OF THOMAS CRAWFORD

Thomas H. Crawford, superintendent of the Creek County Gas Co., of Cushing, Okla., for the past 10 years and who was connected with the natural gas business for the past 30 years, chiefly in Indiana, Ohio and Oklahoma, died recently at his home in Cushing. Mr. Crawford was born in Shelby County, Indiana. He served in the Spanish-American War and was senior vice commander of the Spanish-American War Veterans at Cushing. Interment was at Galveston, Ind.

"SUPERIOR TO ANY BIT WE HAVE YET USED"

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Att. Mr. O. O. Adkins, Rep.

Gentlemen:-

You asked me to write you in regard to the service we are getting from the TIVAN fish tail bit. I am very much pleased to report that we find it far superior to any bit we have yet used, - she is cutting the buck in the Stroud and Cushing fields beyond our expectations.

We have just finished a well at Stroud, drilling with the TIVAN bit, and can hardly miss the steel cut off of them on this well, and have not had a single break of any nature. That within itself is a recommendation for a bit in this locality.

Again I say we are well pleased and that there will be no bit other than the TIVAN used on our rigs as long as this service is convincing.

You are at liberty to use this testimonial for a means of advertising if it will benefit your company in any way.

Trusting this is the information desired, we are,

Yours very truly,

Willis-Trigg & Lewis

Drilling Supt.

Jom Ballin

So far as we know no TIVAN Bit has ever had a Twist-Off.

Fewer Round Trips---No Twist-Offs

Every driller knows that the BIT is the determining factor in drilling costs. The kind of bit used may mean the difference between 20 days and 10 days in drilling a given footage, —may mean the difference between average costs on a well and *50% lower* costs.

We set out to produce the *PERFECT* fish tail bit. Every factor from the specially developed alloy tool steel to the final testing with Brinell machines, has had the best scientific attention. TIVANS stay sharp longer, will not twist off, have exceptional dressing and hardening range. Their use will save you *thousands* of dollars.

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Big producers have a habit of getting all of the oil with little replacement cost for pumping specialties and a minimum of pulling expense —due, no doubt, to their habit of placing their faith in HOUGH PUMPING SPECIALTIES.

The small producer seeking utmost economy will do well to consult his dealer about the HOUGH line.

THE CHARLES N. HOUGH MFG. COMPANY

Franklin, Pennsylvania

Products that cut down your underground overhead.

DeGolyer Predicts Declining Production During Coming Year

By E. DeGolyer*
President Amerada Petroleum Corp.

Production in the United States exceeded expectations and consumption, satisfactory as it was, did not meet expectations. The net result was an increase in stocks instead of the indicated draught. On the whole, however, overproduction was confined fairly well to low gravity Smackover crude in the eastern United States and to California and the year was a prosperous and satisfactory one in the industry—by far the best it has experienced since 1920.

The outlook for the present is the same as the outlook at this time of year in 1925, and in 1924, for decline in production and withdrawal of oil from storage. As in previous years, no pool of bonanza proportions is in sight. Our expectations have failed of realization before and may fail again. Each year we seem to find our hopes defeated by some new and potent factor which we have not met before. Last year the industry learned by experiment that it could suffer from overrefining at a time when production conditions were fairly satisfactory. Caution suggests that after considering factors with which we have had experience, time may well be spent in considering the possible results of still newer influences which we have not yet experienced.

One such factor worthy of consideration is the possibility that in times of consumption in excess of production, certain users of fuel oil in competition with coal must yield to gasoline users on account of price increase. If Teagle's law, as outlined at Fort Worth, is true and, in times of continued overproduction, the price of gasoline must be determined by the price at which fuel oil can be profitably cracked and so by the price of fuel oil, the converse must also be true and in times of continued underproduction, the price of fuel oil must be governed to some extent by the price of gasoline. In other words, according to modern refining practice, fuel oil is largely potential gasoline, at a price. The gasoline market is the price control in time of gasoline shortage and the fuel oil market is the price control in time of an oversupply of gasoline. If one may follow the leaders of industry, the use of fuel oil in competition with coal is to say the least, uneconomic and in case of gasoline shortage, such user of fuel oil must yield to the requirements of the gasoline user. Price is the club which makes him yield.

Teagle estimates that approximately 1,054,000 bbls. daily of our present consumption is oil burned under boilers in competition with coal. Granting that there are preferred uses such as bunkering, there must be a great quantity of this oil the use of which is entirely in competition with coal.

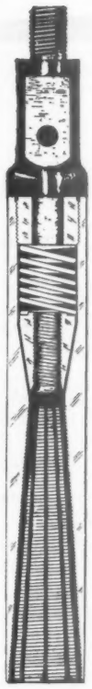
The point which the writer would suggest is that when the time comes to take over any appreciable fraction of this oil for cracking purposes, it can be done only by price increase and, again following Teagle, the critical fraction which establishes the price of approximately 10 per cent. Will this not drive the oil-in-competition-with-coal user from the fuel oil market and throw back into the industry a much greater quantity of oil than it can crack and market as gasoline. Any such readjustment of oil consumption must result in price disturbances.

The present outlook in the petroleum industry is for declining production. In foreign fields, Venezuela should show an increase of 10,000,000 bbls.; Colombia an increase of 6,000,000 to 8,000,000 bbls.; increases of a few million barrels each from Peru, Russia and perhaps the Dutch East Indies; more or less stationary production or slight increases in Persia, Roumania, Argentina, Poland, Sarawak, and Trinidad; and considerable decreases in the production of the United States and Mexico.

*Before American Institute of Mining and Metallurgical Engineers, New York.

Proven Facts

A SOCKET WITH ONLY ONE SET OF SLIPS YET IT CATCHES EVERY SIZED ROD, BOX AND PIN



When the rods are broken at the joints the (Die) bowl can be screwed on the box or pin cutting threads that will hold the weight of the rods, thus enabling the rods to be pulled out. The bowls are special hardened leaving the outside soft so that the bows will not split.

Should the rods break the slips slip over the end and take a tight grip. The Slip seat is made of very steep taper so that a strong hold is certain and release is easy when desired.

The slips are held in place by a spring so that a catch is always certain.

Springs are made of brass and will not rust.

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Manufactured by

CUNNINGHAM COMPANY

212 S. NORFOLK
TULSA, OKLA.

CALIFORNIA FIELDS

(Continued from Page 48)

couragement but the latter is showing very satisfactory. The Milham Co.'s No. 2 Conroy, was checked at 2,800 feet, while W. W. Stabler's No. 1 Castaic, also in this vicinity, was reported at 1,360 feet. The Milham Co. has just passed the 1,000-foot level in its second Playa del Ray wildcat, while the Petroleum Securities has passed 1,400 feet at Palos Verdes, in Section 36-4-14. The Union is making fairly fast footage in No. 1 McNally at La Mirada and over 2,500 feet of hole has been made. Asmunson & Rudd have spudded in their wildcat in Section 9-6-12, approximately 6 miles southwest of the town of Lancaster in Antelope Valley but, as only a small cable outfit is being used, the test will probably be a shallow one.

Northern California Wildcats

It has been several weeks since any operators in the Kettleman Hills area have made any progress. The General Petroleum and Marland are held up with fishing jobs, while the Associated has suspended work in its test and the Bolsa Chica is attempting to effect a water shut off at 1,798 feet. H. F. Becker's wildcat near Summerland in Santa Barbara County is reported to be in a blue sandy shale at 1,648 feet, and the Channel Oil Co., also in this county, is underreaming its 4,800-foot hole. The Harriman-Jones Oil Co. has temporarily suspended work on its Monterey County wildcat, which was given an exhaustive pumping test at 4,156 feet, and it is unknown what the future plans are. The Pyramid, 4 miles southeast of San Lucas, is attempting to land a string of 8¼-inch at 1,850 feet but the boulder formation is causing trouble.

N. LOUISIANA-ARKANSAS

(Continued from Page 42)

Fortuna Oil Co. set 6-inch at 1,450 feet in No. 24 Raines, Section 22-21-15; coring at 2,400 feet in No. 1 Spell, Section 29-21-15; drilling at 1,200 feet in No. 1 Wiley Bradford, Section 24-21-15; Gulf Refining Co. is drilling at 1,512 feet in No. 9 J. P. Hearndon, Section 15-21-15; and arranging to drill deeper at 2,856 feet in No. 17 Lane, Section 13-21-15; drilling at 81 feet in No. 1-E Muslow, Section 35-21-15; rigging up to drill No. 12 Elbert Tyson, Section 14-21-15; O'Dell & Lawton are down 1,410 feet in No. 4 Red Bayou, Section 15-21-15; Ohio Oil Co. has shut down and is waiting core bit cutters at 3,850 feet in No. 1 J. B. Ardis, Section 1-21-15; coring lime at 3,728 feet in No. 18 E. K. Smith, Section 12-21-15; The Texas Co. is drilling in chalk rock at 1,778 feet in No. 42 Caddo Mineral Land Co., Section 23-21-15, and is arranging to go in and drill deeper in No. 23½ Caddo Mineral Land Co., which is an old junked hole right by the side of No. 23, completed making 100 bbls. at 2,303 feet, also building derrick for No. 12-B Noel, Section 14-21-15.

Hosston District

Dixie Oil Co. is waiting for standard rig at 1,043 feet in No. 3 Donovan, Section 21-22-15, and has derrick up for No. 4 Donovan, same section; drilling in lime at 3,799 feet in No. 1 Jolly, Section 27-22-15.

Elm Grove District

The Texas Co. set 10-inch at 103 feet in No. 1 Caddo School Board, Section 16-15-12, 6 miles south of Taylortown, and Woodley Petroleum Co. set 10-inch at 300 feet in No. 1 Knight, Section 35-16-12.

Oil City District

Gulf Refining Co. is drilling in gumbo at 2,519 feet in No. 225 Ferry Lake, Section 21-20-16, and is drilling in sandy lime at 2,440 feet in No. 222 Ferry Lake, which was formerly completed pumping 15 bbls. at 2,286 feet, Section 16-20-16; drilling at 140 feet in No. 227 Ferry Lake, Section 16-20-16; drilling in broken sand at 2,254 feet in No. 226 Ferry Lake, same section; has derrick up for No. 229 Ferry Lake, Section 15-20-16; D. C. Richardson is rigging up to drill Nos. 3 and 4 Youree-Randolph, Section 13-20-16; The Texas Co. is drilling in sandy shale at 1,902 feet in No. 59 Levee Board, Section 33-21-16, and has derrick up for No. 11 Russell, Section 3-20-16.

In the old Caddo Field, Standard Oil Co. set 6-inch at 2,196 feet in No. 11 J. J. Hart, Section 34-21-16.

Three miles northwest of Rodessa, W. J. Stauffer is drilling at 3,032 feet in No. 1 Starcke, Section 17-23-16.

Maine Drilling Co. is down 810 feet in No. 1 Cunningham, Section 15-17-14, 3 miles southwest of Shreveport.

Haynes Brothers drilled plug, tested salt water, waiting orders at 3,712 feet in No. 1 Louisiana Live Stock & Plant Co., Section 8-19-16, 5 miles southwest of Mooringsport.

Claiborne Parish

Standard Oil Co. set 6-inch at 1,858 feet, cored at 1,861 feet, has a show of oil at 1,862 feet in No. 4 Shaw, Section 30-21-7, 4 miles west of Homer.

Triangle Drilling Co. cored gray sand at 3,440 feet in No. 1 Keen, Section 7-19-5, in the Sugar Creek district, and is drilling at 1,900 feet in No. 1 Meadows, Section 7-22-5, 8 miles south of the Arkansas line and 10 miles northeast of Homer.

DeSoto Parish

Dixie Oil Co. is arranging to resume drilling at 3,297 feet in No. 1 Jenkins, Section 9-12-11, 1 mile northeast of Bayou Pierre Lake.

Fortuna Oil Co. is drilling in gummy shale at 3,134 feet in No. 1 Bond, Section 27-12-11, 8 miles west of Coushatta.

Gulf Refining Co. is drilling in hard lime at 6,013 feet in No. 18-C Willis-Williams, Section 31-13-11, in the Naborton Field.

The Texas Co. pumped 80 bbls. of water and 10 bbls. of oil at 1,263 feet in No. 31 Christine O. & G. Co., Section 6-12-11, 8 miles west of the Gusher Bend Field.

Two miles north of Addington, The Texas Co. has derrick up for No. 10-A Wemple, Section 2-12-12.

J. C. Walton is drilling at 955 feet in No. 1 Hark, Section 36-12-11, 1 mile south of the Gusher Bend Field.

Grant Parish

Dowling & McCurry are shut down at 1,525 feet in No. 1 Holmes, Section 20-9-1e, 4 miles south of Rochelle, and half way between Georgetown and Selma.

LaSalle Parish

Atlantic Oil Producing Co.'s No. 1 Tullos flowed 4 hours, at the rate of 100 bbls., then sanded up, found well, drilled itself 4 feet deeper, plugged back 4 feet and bailing casing. This test is in Section 26-10-1e. Ayers and others are drilling in gumbo at 1,965 feet in No. 2 Urania, Section 13-10-1e, and set 6-inch at 1,531 feet in No. 1 Russell, same section.

Beckman and others are waiting for standard rig at 1,550 feet in No. 5 Urania, Section 25-10-1e, formerly reported as No. 4; and are rigging up to drill No. 6 Urania, same section. W. H. Buckhart is rigging up to drill No. 1 Smith, Section 26-10-1e, half way between Rochell and Urania.

O. W. Clark Trustee set 6-inch at 1,532 feet in No. 2 Miles, Section 25-10-1e, 1 mile east of Tullos; cemented 10-inch at 101 feet, set 6-inch at 1,532 feet in No. 1-B Russell, Section 26-10-1e, 3 miles southwest of Urania; set 10-inch at 100 feet; down 1,440 feet in No. 1 Smith, same section. Cook Drilling Co. is down 200 feet in No. 1 Tullos, Section 25-10-1e, 1 mile east of Tullos.

Daniels and others set 6-inch at 1,521 feet in No. 1 H. Tullos, Section 28-10-1e, 3 miles west of Tullos. Dixie Oil Co. set 10-inch at 105 feet, down 550 feet in No. 2 Urania, Section 24-10-1e, 1 mile north of Tullos. The Explorers Oil Corp. set 10-inch at 103 feet in No. 2 Gaharon, Section 26-10-1e, half way between Rochell and Urania.

Ferguson and others set 10-inch at 96 feet, down 300 feet in No. 1 Jarrell, Section 26-10-1e; Galloway and others are waiting for standard rig to pump in 5 feet of sand with 1,000 feet of oil and one joint of mesh screen in the hole at 1,562 feet; Greenwall and others set 6-inch at 1,530 feet in No. 1 Sayers, Section 26-10-1e; Hamilton and others have derricks up for Nos. 2 and 3 Bennett, Section 25-10-1e.

A. E. Hudson, Trustee, set 10-inch at 107 feet, drilled to 550 feet in No. 1 Urania, Section 12-10-1e, 1 mile west of Urania. Hunt and others set 6-inch at 1,482 feet in No. 1 Tullos Heirs, Section 26-10-1e, and have derrick up for No. 2 Tullos Heirs, same section. Hunt, McCurry & Zoder set 10-inch at 105 feet, drilled to 950 feet in No. 1 Urania, Section 7-10-2e, about 1 mile north of Urania; H. M. Jones has derricks up for Nos. 3 and 4 Russell, Section 25-10-1e.

In Section 25-10-1e, the Louisiana Oil & Refining Co. has set 6-inch at 1,521 feet in No. 1 Bass; set 10-inch at 1,445 feet in No. 2 Bass; set 10-inch at 105 feet, drilled to 750 feet in No. 3 Bass, and has set 6-inch at 1,530 feet in No. 1 Russell Fee, Section 30-10-2e. The Louisiana Oil & Refining Co. is waiting for standard rig to pump in 2 feet of sand at 1,553 feet, No. 3-A Tremont, 2 miles east of Tullos.

In Section 29-10-2e, the Louisiana Oil Co. set 10-inch at 103 feet, has drilled to 1,535 feet in No. 7-B Tremont; drilling at 50 feet in No. 9-B Tremont; set 10-inch at 100 feet, drilled to 1,293 feet, No. 10-B Tremont; 10-inch at 100 feet, down 640 feet, No. 11-B Tremont; 10-inch at 100 feet, down 1,475 feet, No. 12-B Tremont; drilling at 50 feet, No. 16-B Tremont; set 10-inch at 100 feet, drilling at 1,529 feet, No. 17-B Tremont; 10-inch at 100 feet, drilling at 1,400 feet, No. 25-B Tremont; 10-inch at 100 feet, drilling at 1,526 feet, No. 26-B Tremont. In Section 25-10-1e, the Louisiana Oil & Refining Co. has set 10-inch at 102 feet, and is drilling at 1,490 feet, No. 13-B Tremont.

Love and others set 6-inch at 1,511 feet in No. 1 Zimmerman, Section 25-10-1e.

Natural Gas & Petroleum Co. has derrick up for No. 1 H. Tullos, Section 26-10-1e; blowed out at 1,538 feet, lost hole, moved 100 feet east and is rigging up for second hole for No. 5 Tullos, Section 25-10-1e; set 10-inch at 105 feet, drilling at 300 feet in No. 6 Tullos, same section.

Ohio Oil Co. has derrick up for No. 3 Urania, Section 24-10-1e.

Standard Drilling Co. set 6-inch at 1,521 feet in No. 1 Clinton, Section 26-10-1e, has derrick up for No. 1 Roark, same section; set 6-inch at 1,545 feet in No. 2 Roark, same section, and has derrick up for No. 1 Tullos, also in the same section.

The Standard Oil Co. set 6-inch at 1,564 feet in No. 1 Urania Lumber Co., Section 19-10-1e, begun February 13 and pumped 500 bbls. cut oil at 1,570 feet, then went dead in 3 feet of sand, No. 2 Urania Lumber Co., same section.

O. F. Whittaker cored to 1,427 feet, after setting 10-inch at 100 feet in No. 1 King, Section 36-10-1e. Williams Drilling Co. is rigging up to drill No. 1 Tullos, Section 26-10-1e.

Zeigen and others set 6-inch at 1,527 feet in No. 2 Urania, Section 18-10-2e, 1 mile south of Urania.

Lincoln Parish

Buckley & Palmer are coring at 980 feet in No. 1 Davis, Section 12-20-3w, corrected depth, 2 miles north of Dubach.

The Texas Co. has derrick up for No. 1 Tremont, Section 27-18-1w, 10 miles east of Ruston.

Morehouse Parish

R. C. Boisseau and others are trying to kill water flow at 2,487 feet in No. 1 Sullivan, Section 11-21-7e, 12 miles east and a little north of Bastrop.

Natural Gas & Petroleum Co. is down 100 feet in No. 17 Crossett, Section 12-21-4, 6 miles northwest of Bastrop.

Natchitoches Parish

Amerada Petroleum Corp. is drilling in shale and lime at 3,167 feet in No. 1 Wafer, Section 3-11-8, 6 miles north and a little west of Campti.

Ouachita Parish

J. M. Hober set 10-inch at 200 feet in No. 7 Fee, Section 30-19-5e, in the Monroe Gas Field; Ladell and others are rigging up to drill No. 33 Fee, Section 36-19-4e; and Palmer Corp. set 8-inch at 821 feet in No. 1 Fee, Section 24-19-4e, all in the Monroe Gas Field.

United Carbon Co. set 8-inch at 830 feet, drilling at 1,250 feet in No. 1 Archie, Section 24-20-4e, north of the Monroe Gas Field.

Rapides Parish

F. Pacholic has made location for No. 1 Veda, Section 12-4-1e.

Sabine Parish

L. M. Emlet has temporarily abandoned No. 6 Bowman-Hicks Lumber Co., Section 8-7-12, at 3,710 feet, and is drilling in chalk rock at 3,000 feet in No. 5 Bowman-Hicks Lumber Co., Section 9-7-12, 10 miles east and a little north of Many, which was formerly completed, bailing about 1 bbl. per day.

Union Parish

Arkansas Fuel Oil Co. has shut down at 1,730 feet in No. 1 Reeves-James, Section 14-20-1e, 4 miles east and a little south of Farmerville.

Empire Gas & Fuel Co. is drilling in gummy chalk at 2,278 feet in No. 1 Dubach, Section 17-20-1e, 4 miles south of Farmerville.

Natural Gas Producing Co. has set 6-inch at 2,101 feet in No. 1 Jenny, Section 1-20-3e, half way between Farmerville and Bastrop.

Cotton Valley District

Alabama Petroleum Co. is waiting for standard rig at 2,583 feet, in 19 feet of sand at 950 feet of oil in the hole, No. 3-A Robbins, Section 21-21-10; also has derrick up for No. 1-B Robbins, same section.

Doern and others are rigging up to drill No. 1 Bollinger, Section 9-12-11. Fortuna Oil Co. is waiting for casing to set at 4,269 feet in No. 1 Bible, Section 8-20-9.

Gulf Refining Co. is drilling in gumbo at 1,100 feet in No. 1 S. P. D. Coyle, Section 21-21-10. Humble Oil & Refining Co. is fishing for 20 joints of drill stem at 4,214 feet in No. 1 R. R. Cox, Section 22-21-10.

Ohio Oil Co. set 10-inch at 301 feet in No. 36 Bodcau, Section 21-21-10; drilling in anhydrite at 4,353 feet in No. 1 W. Cox, Section 23-21-10; has set 6-inch at 2,539 feet in No. 22 Gray, Section 26-21-10; drilling in anhydrite at 2,353 feet in No. 1 A. J. Hodges, Section 23-21-10; and Smitherman-McDonald are rigging up to drill No. 1 Oakley, Section 24-23-11.

Arkansas Wildcats

Ashley County — Rhodes & Kirker tested dry with no show of oil at 1,652 feet in No. 1 Bledsoe, Section 20-15-7, 12 miles north of Hamburg.

Calhoun County—Magnolia Petroleum Co. is arranging to set 6-inch at 3,966 feet, will test 3 feet of sand at 3,973 feet in No. 1 Calion Lumber Co., Section 29-15-14, 6 miles east and a little south of Smackover production.

Southern Crude Oil Producing Co. set 8-inch at 2,382 feet in No. 1 Freeman-Smith Lumber Co., Section 19-14-15, 6 miles north of Smackover production and 9 miles southeast of Camden.

Columbia County—Hude & Aarnes are drilling in red shale at 3,033 feet in No. 2 Brown, Section 13-15-20, in the Stephens Field; Magnolia Petroleum Co. set 6-inch at 2,140 feet in No. 7 Rhinehart, and has derrick up for No. 8 Rhinehart, same section.

Hempstead County—Burton and others are drilling at 860 feet in No. 1 Garland, Section 23-10-25, 4 miles north of Washington.

C. W. Robinson is drilling at 2,770 feet in No. 1 Toner, Section 29-12-23, 5 miles east of Hope.

Lafayette County—Arkansas Fuel Co. set 10-inch at 163 feet, drilling at 620 feet in No. 2 Red River Land Co., Section 18-19-24, 2 miles east of Bradley.

Kensaw Petroleum Co. has shut down at 2,840 feet in No. 2 Red River Land Co., Section 3-20-24, just across the Louisiana line and 8 miles west and a little north of the Springhill district.

Miller County—Bragden and others have shut down and are waiting orders at 2,650 feet in No. 1 Wiseman, Section 36-15-26, 11 miles east of Texarkana.

Buzzard Bluff Oil Co. is drilling in sandy shale at 2,006 feet in No. 1 Munn, Section 22-14-26, on the Hempstead

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County line, and 9 miles east of Clerk Lake Junction.

Humble Oil & Refining Co. is rigging up to drill No. 1 Cranks, Section 5-17-25, 10 miles northeast of Fouke.

Lenze and others have junked hole and are arranging to skid derrick over at 1,208 feet in No. 1 Dale, Section 25-15-26, 10 miles northwest of Lewisville.

Nevada County—Bemis and others set 10-inch at 100 feet, and 6-inch at 1,154 feet in No. 2 J. D. Ellis, Section 2-14-21, 10 miles north and a little west of the Stephens Field.

Greason and others are rigging up to drill No. 2 Waters, same section.

Humble Oil Co. is rigging up to drill No. 1 T. W. Calloway, Section 10-15-22, 8 miles northwest of Waldo.

Keystone Oil Co. set 6-inch at 1,184 feet in No. 7 Waters, Section 10-14-21, 19 miles directly north of Magnolia.

Magnolia Petroleum Co. is drilling in sandy lime at 4,475 feet in No. 1 B. F. Johnson, Section 3-15-21, 1 mile north of the Keystone Oil Co.'s well.

Smitherman-McDonald are bailing to test in 6 feet of sand at 1,144 feet in No. 2 C. W. Waters, Section 2-14-21, 10 miles northwest of the Stephens Field.

Twenty miles north of Magnolia, Zing and others have set 10-inch at 40 feet in No. 4 Womack, Section 10-14-21, and Keystone Oil Co. has derrick up for No. 8 Waters, same section.

NEW MEXICO FIELDS

(Continued from Page 42)

Keiser test, in Section 16-18-28, after carrying this hole down to 3,400 feet.

Drilling Report

Beeson's No. 1, SE cor. Section 33-17-30, derrick skidded and rigging up on new hole; Braden, Trueshell, Vandagriff's No. 1, in NE cor. SE, Section 5-17-28, shut down; Chessman, Ballard & Black's No. 1, Massey permit, Section 21-18-29, shut down at 2,912 feet; Colorado Drilling Co.'s No. 1 Irvin, SE cor. SE, Section 8-16-28, drilling at 1,250 feet in hard gray lime; Cook-Ironsides and others, Section 10-20-20, will resume drilling for a 2,500-foot test; Compton's No. 1, Section 16-18-28, shut down at 3,500 feet; No. 2, Mann permit, Section 3-18-27, no report; Danciger Oil & Refining Co.'s No. 2 Beeson, Section 18-18-28, drilling at 750 feet; Danciger Oil & Refining Co.'s No. 2 Ragsdale, Section 18-18-28, location; Dome Oil Co.'s No. 4, Section 21-18-28, drilling; Empire Gas & Fuel Co.'s Section 31-24-27, no report; Flynn, Welch & Yates' No. 30, Section 21-18-28, location made; No. 38, in SE Section 3-18-28, drilling below 2,300 feet; No. 39, in SE, Section 21-18-29, drilling at 500 feet; No. 2 Keyes, in SE cor. SW NW, Section 21-18-28, drilling below 1,100 feet; No. 3 Keyes, Section 21-18-28, spudding in; Fletcher Oil Co. in Section 5-19-28, drilling below 2,200 feet; Frontier Petroleum Co.'s No. 11 McQuigg, Section 4-18-28, cleaning out after shot; Hope Development Co.'s No. 1 Fite, Section 4-18-23, drilling; Hassenfuse, Donley & Compton No. 1 in SE cor. SE SW, Section 16-18-28, drilling below 2,620 feet; Levers, Carper's No. 2, in Section 3-18-28, drilling below 1,200 feet; Levers, Wilson's No. 2 in the NW SE, Section 18-18-28, cleaning out after shot; Maljamar Oil & Gas Corp.'s No. 14, SW cor. NW, Section 28-18-28, on production; Mesa No. 1, Section 4-19-28, drilling below 2,630 feet; Maljamar Oil & Gas Corp.'s No. 15, NW cor. NW, Section 28-18-28, setting 8-inch casing; No. 16, same section, drilling below 150 feet; McFrederick-Eppenauer's No. 1, Section 15-19-25, drilling below 2,840 feet. Ohio Oil Co.'s No. 1 Tracy permit, Section 34-21-16, drilling at 5,720 feet; Ohio Oil Co.'s No. 6 Toomie Allen, Section 28-18-28, cleaning out; Ohio Oil Co.'s No. 1 Keiser, Section 16-18-28, plugged at 3,426 feet; Ohio Oil Co.'s No. 1 Edgerton, NW NW, Section 18-18-29, drilling at 1,250 feet; Ohio Oil Co.'s No. 7 New State, Section 4-18-28, cleaning out after shot; No. 8 New State, Section 4-18-28, on production; No. 9 New State, drilling at 2,350 feet; No. 10 New State, 533 feet east of No. 9, moving rig; Ohio Oil Co.'s No. 1 Marion, SE NE, Section 5-18-28, drilling below 1,450 feet; Ohio Oil Co.'s No. 1 New State, NW NE, Section 8-18-28, drilling at 850 feet; Picher Oil & Gas Corp.'s No. 2, SE cor. SE, Section 12-18-18, moving rig; A. H. Ramage's No. 1, SW SE, Section 2-18-28, rigging up; Rehn and others' No. 1 Winance, NW NE, Section 15-18-26, rigging up for a 1,500-foot test; Snowden-McSweeney's No. 1, McNutt permit, Section 4-21-30, shutting off water at 4,400 feet; Snowden-McSweeney's No. 3, NE cor. NE NW, Section 33-18-28, drilling at 1,100 feet; M. L. Smith and others' No. 1 White, SE NW, Section 9-17-23, drilling; Texas Production Co.'s No. 4, Section 5-18-28, drilling below 3,225 feet; Twin Lakes' No. 7, Section 28-18-28, location; V. K. F. Oil Co.'s No. 7, Section 17-18-28, drilling in; Wade and Bujac's No. 1 Daugherty, SE SE, Section 3-17-27, no report; Wade & Bujac's No. 1 Goodale, NW NW, Section 19-18-29, moving rig; Williams Petroleum Co.'s No. 4, Section 17-18-28, on production.

Chaves County

Arkansas Gas & Fuel Co.'s No. 1 Manning Dome, SE cor. Section 14-15-17, drilling below 3,380 feet in gray sand; Colorado Gas & Fuel Co.'s well NW SW, Section 14-15-17, drilling; Southern Exploration Petroleum Co.'s Section 15-15-29, plugged at 3,118 feet; Shaeffer Oil Co.'s No. 1, NE, Section 25-13-26, abanboned at 2,300 feet; Shaeffer Oil Co.'s Wilson permit, No. 1 test, Section 30-10-26, drilling below 1,900 feet; White Oil Co.'s No. 1 Franks, SW SW, Section 25-10-26, drilling below 1,682 feet; New State Petroleum Co.'s No. 1, SW NE, Section 27-10-26, repairing boiler, depth 2,070 feet; Neal and others' No. 1, Section 25-9-25, drilling below 1,050 feet.

Lea County

Maljamar Oil & Gas Corp.'s No. 1, on Government permit, NE, Section 21-17-32, hole filled 230 feet in oil at 2,334 feet; Ross No. 1, Section 27-10-32, shut down at 2,150 feet.

Texas-New Mexico Line

Pure Oil Co.'s No. 1, Section 21, Block 63, Township 1, Culberson County, drilling; Humble Oil & Refining Co.'s Section 32-57-1, Reeves County, drilling.

CANADIAN FIELDS

(Continued from Page 40)

ning to supplement the Irma-Wainwright crude with Montana crude.

Medicine Hat Field

In the Medicine Hat Field, the Roth Syndicate's No. 1 deep test at Crescent Heights, in the city of Medicine Hat, is reported drilling in very hard limestone at 2,930 feet. Some wet gas production has been encountered, but the test is being carried deeper for oil. A location is being made for Roth No. 2.

In the Border Field, the Lethbridge Oils, Ltd., derrick on Section 12-1-5w4, was wrecked by a high wind recently, the damage being estimated at $2,500. The test was started some years ago but has been standing idle at about 2,030 feet for a couple of years.

Interests represented by G. G. Gibson, superintendent of the Arctic Refinery at Lethbridge, are reported to have leased considerable territory on the Pot Hole Dome structure south of Lethbridge, and are bringing in an expert to investigate the possibilities. Outcroppings in this area have been identified as Colorado shales.

Dover Field

In the Dover Field, Kent County, Ontario, Union Natural Gas Co. is reported to have located No. 20 deep test close to the existing production, and will start drilling at once. It is understood the location is based on a careful correlation of the geological data secured in other tests of the Trenton limestone drilled in this area, a reexamination of this data having indicated a strong possibility of a new trend on the line of production. The Dover Field, though it has developed several good producers of both oil and gas, has on the whole proved disappointing heretofore, the Union Natural Gas Co. having got only about a half dozen producers, several of them small wells, out of 20 deep tests drilled, and the good producers being pretty well ringed about by dusters. Many operators have, however, held the belief that the production at this point must be derived from some

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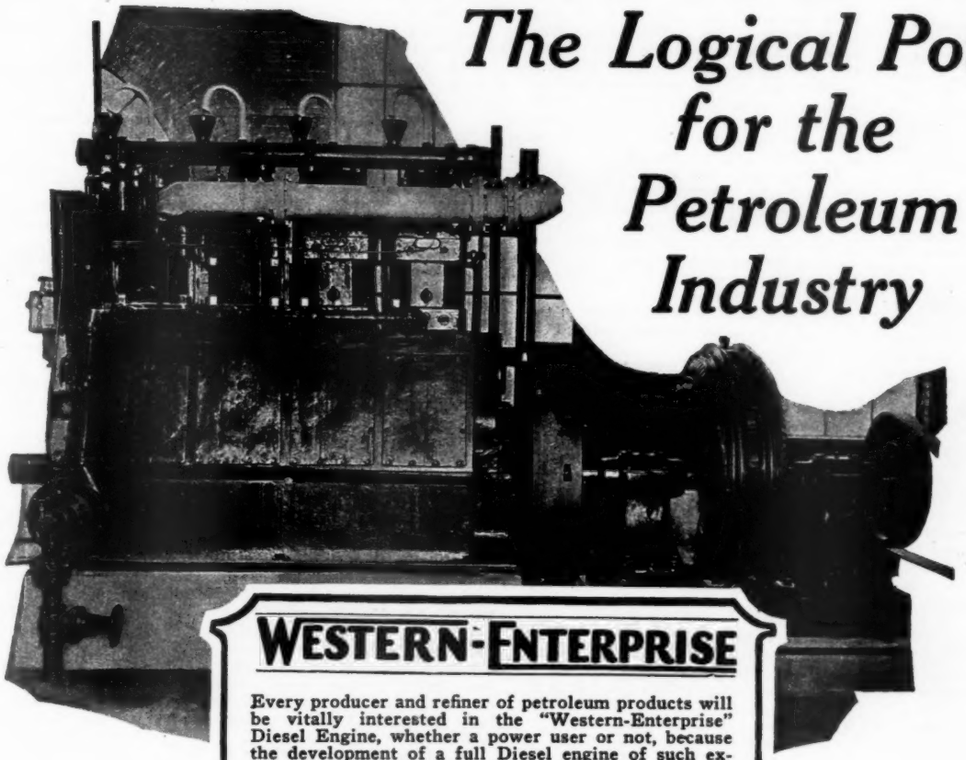

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larger reservoir not yet tapped by drilling. It is planned to carry No. 20 deep test through the Trenton limestone to the granite if commercial production is not sooner developed.

PANHANDLE SCENE OF MUCH FIELD ACTIVITY

(Continued from Page 33)

degrees. It is said to contain a great amount of wax. It skims 30 per cent and cracks 55 per cent gasoline.

The first commercial oil production in the Panhandle was reported in the spring of 1924 and by the end of 1925 there were 28 producing wells in Carson County and 22 in Hutchinson County. The Carson County wells averaged 73.89 bbls. per day actual pipe line runs while those in Hutchinson County averaged 11.13 bbls. to the well delivered to the pipe line.

Prospective Area

Up to the close of January the productive area had been confined between the 1,200-foot and the 800-foot contour on the north side of the structure, the proven productive area comprising about 32,000 acres, running about 12 miles north and south and 4 miles east and west. To the west is another area of about 32,000 acres which has been partly proven and is situated structurally similar to the proven area. Still farther west is another area of about the same size as the two first mentioned which is unproven, but which is as favorably located structurally as the others.

Wells as high as 1,000 bbls. initial production have been completed in this field. It is yet too early to say how the wells will hold up. They are with the exception of the two most recent completions on Block Y in Hutchinson County fairly well scattered and because of a lack of pipe line facilities have been shut in or permitted to produce only a part of their capacity.

Up to last fall the wells in Carson County on an average produced more than the Hutchinson County wells. Then the experiment of shooting the sandy lime was tried and it resulted in the Hutchinson County wells surpassing those in Carson County in average output.

Shut-in Production

Up to this time Panhandle wells have produced only enough oil to supply the demands of the local pipe lines. Potentially they have been able up to very recently to produce 8,500 bbls. a day and this potential production has been increased by the McIlroy Oil Co. and the Canadian River Oil Co.'s recent good completions in Section 4, Block Y, in Hutchinson County, which made about 1,200 bbls. each the first 24 hours after they had been shot. If the wells shut down on top of the sand for lack of a market for the crude were drilled in, the production could be increased to 12,000 bbls. a day or more in a short time.

The gas in the Amarillo Field has a gasoline content of about 3 gallons per 1,000 feet. The Phillips Petroleum Co. which manufactures gasoline from the gas runs the finished product through a pipe line to Panhandle where there is a loading rack. The company was recently granted the right to make carbon black with its residue gas.

The Conservative View

The future of the field and the longevity of the producing wells is as yet purely a matter of opinion. Not to be too optimistic in viewing the Panhandle as a future important producer of oil it might be said that the sand conditions are not ideal for long lived production, and if a reason is asked, it might be said that the producing horizons are too broken and irregular and the encroachment of water too imminent. It will strike the majority of oil men that the wells producing from the sandy lime will be more profitable than those producing from the granite wash but even the sandy lime shows some water. Water in the granite wash would be more dangerous because if it is drilled into there is no good place to plug it off. On the other hand, it has been shown that water in the sandy lime can be plugged off.

The ultimate production of the field is purely speculative but if it produces 2,000 bbls. to the acre, which is certainly not putting it high, the Amarillo Field could reasonably be guessed at a minimum of 125,000,000 bbls. in total output.

Due to recent good wells in Hutchinson County and to persistent rumors of adequate pipe line facilities to be built there is a lively hunt for leases, but the early birds who got into the play when acreage was cheap are holding out for prices that make conservative oil men hesitate to make deals. Leases close to the Canadian River are selling at from $300 to $600 per acre and even higher prices have been paid for choice tracts. The prices will no doubt come down if the pipe line rumors prove to have been unjustified, but on the other hand nothing would stop a big leasing play and a much increased degree of actual field work when the Panhandle operator is assured of a quick outlet for his oil.

Drilling costs run somewhat high in the territory. About $35,000 will cover the cost of a completed well in the 2,800-foot horizon. Getting through the big gas is the main trouble of the contractor and the fact that there is nothing to indicate just where the gas will be encountered adds to his troubles.

Following is a list of operations in the Panhandle Field for the week ending February 13:

Carson County

Amarillo Oil Co.'s No. 3-B Bivens, G. B. & C. survey, Section 15, total depth 2,875 feet, running 8¼-inch casing.

American Refining Co.'s No. 1-D S. B. Burnett, I. & G. N. survey, Section 15, 3,032 feet, cleaning out, cemented 6⅝-inch in dry hole; run tools in 10 days and found good oil show in sandy lime.

American Refining Co.'s No. 3-A S. B. Burnett, I. & G. N. survey, Section 115; total depth 2,070 feet; standardizing.

Magnolia Petroleum Co.'s No. 2 S. B. Burnett, I. & G. N. survey, Section 115; at 1,000 feet; drilling in red bed.

Marland Oil Co.'s No. 1-A S. B. Burnett, I. & G. N. survey, Section 116; at 1,810 feet; drilling in red bed.

American Refining Co.'s No. 1-E S. B. Burnett, I. & G. N. survey, Section 129; at 3,138 feet; shut down for orders.

Jack Crosbie's No. 3 S. B. Burnett, I. & G. N. survey, Section 114; rig.

Gates Oil Co.'s No. 2 S. B. Burnett, I. & G. N. survey, Section 107; total depth 2,907 feet; cemented 6⅝-inch pipe.

Silk, Bullington Clark's No. 5 S. B. Burnett, I. & G. N. survey, Section 114; location abandoned.

Rydal Oil Co.'s No. 1 S. B. Burnett, I. & G. N. survey, Section 107; total depth 3,062 feet; shut down for orders.

The Texas Co.'s No. 4 M. C. Burnett, I. & G. N. survey, Section 113; at 2,506 feet; drilling in lime.

Marland Oil Co.'s No. 1-B S. B. Burnett, I. & G. N. survey, Section 101, Block 4; rigging up.

Gulf Production Co.'s No. 10 S. B. Burnett, I. & G. N. survey, Section 106; at 1,700 feet; running 10-inch casing.

Greenwood and others' No. 1 S. B. Burnett, I. & G. N. survey, Section 76; total depth 2,680 feet; shut down.

B. S. Barnes' No. 1 S. B. Burnett, I. & G. N. survey, Section 65; total depth 1,150 feet; shut down. (Was Cosden Oil Co.)

Cosden Oil Co.'s No. 1 S. B. Burnett, I. & G. N. survey, Section 35; total depth 2,235 feet; fishing for tools in lime.

Young & Patrick's No. 1 McConnell, I. & G. N. survey, Section 65; location.

Culberson Brothers' No. 1 S. B. Burnett, Section 20; total depth 2,460 feet; temporarily shut down.

McFarland & Thomas' No. 1 G. W. Witter, I. & G. N. survey, Section 1, Block 7; location.

Collingsworth County

Continental Oil Co.'s No. 1 Hughes estate, H. & G. N. survey, Section 79; total depth 3,080 feet; cleaning out; set casing at 3,008 feet; water at 3,080 feet.

Gray County

Young & Patrick's No. 1 Bynum, I. & G. N. survey, Section 188; at 3,280 feet; shut down for orders.

Empire Gas & Fuel Co.'s No. 1 Holtholt, I. & G. N. survey, Section 152; total depth 3,176 feet; shut down for orders; was shut in and opened up, sprayed oil; estimated 1,500 feet of oil in hole.

The Texas Co.'s No. 1 Brown, I. & G. N. survey, Section 137; building steel rig.

Clark & Baldridge's No. 1 Merten Brothers, I. & G. N. survey, Section 82, Block 3; location.

Wilcox Oil & Gas Co.'s No. 2 Worley & Reynolds, I. & G. N. survey, Section 62; total depth 2,560 feet; drilling.

Wilcox Oil & Gas Co.'s No. 2 Combs & Worley, I. & G. N. survey, Section 59; spudded in.

The Texas Co.'s No. 2 Saunders, H. & G. N. survey, Section 3; spudded in.

A. R. Anderson's No. 1 Bradford, H. & G. N. survey, Section 124; total depth 3,810; shut down.

Hutchinson County

Smith & Willbank's No. 1 Lyall, E. L. & R. R. survey, Section 33, Block Z; rig.

Golding & Phillips' No. 1 Hodges, Patton survey; rig.

White Eagle's No. 1 Johnson Brothers, H. & T. C. survey, Section 64; rigging up.

American Refining Co.'s No. 1 Whittenburg, D. & S. survey, Section 2; at 1,700 feet; drilling in red bed.

Gibson Oil Co.'s No. 2 Whittenburg, H. & T. C. survey, Section 62; at 375 feet; drilling in sand.

Skelly Oil Co.'s No. 1 Whittenburg, Whitley survey; at 1,025 feet; drilling in salt.

Skelly Oil Co.'s No. 2 Whittenburg, Whitley survey; spudding.

Skelly Oil Co.'s No. 3 Whittenburg, Whitley survey; building rig.

Skelly Oil Co.'s No. 4 Whittenburg, Whitley survey; location material.

South Hutchinson Oil Co.'s No. 2 Whittenburg, M. & C. survey, Section 13; total depth 2,855 feet; shut down.

South Hutchinson Oil Co.'s No. 3 Whittenburg, M. & C. survey, Section 13; total depth, 1,877 drilling in red bed.

Phillips Petroleum Co.'s No. 1 Johnson, M. Whitley survey; total depth 2,670 feet; drilling in lime; gas at 2,655 feet.

Westex Oil Co.'s No. 1 Whittenburg, M. & C. survey, Section 13; total depth 2,510 feet; drilling in lime.

Jack Crosbie and others' No. 1 Whittenburg, M. & C. survey, Section 12; total depth 1,800 feet; drilling in cave.

Gibson Oil Co.'s No. 1 Whittenburg, H. & T. C. survey, Section 63; total depth 2,800 feet; running 8¼-inch casing.

Gulf Production Co.'s No. 1 Whittenburg, M. Whitley survey; at 2,929 feet; cleaning out, swabbing 114 bbls. first 12 hours; pay in sandy lime at 2,121-29 feet; will drill deeper.

Gibson Oil Co. and others' No. 1 Kingsland, D. & S. E. survey, Section 6; rig; drilling water well.

A. D. Morton's No. 1 Johnson Brothers, Whitley survey; building rig.

R. F. McMillen's No. 1 Whittenburg, Whitley survey; total depth 1,040 feet; drilling in salt.

Phillips Petroleum Co.'s No. 1 Whittenburg, M. & C. survey, Section 12, at 1,080 feet; drilling in salt.

Phillips Petroleum Co.'s No. 2 Whittenburg, M. & C. survey, Section 12; at 670 feet; drilling in salt.

Phillips Petroleum Co.'s No. 3 Whittenburg, Whitley survey; location.

Smith & Bynum's No. 1 Whittenburg, M. & C. survey, Section 12, Block Y; rigging up.

Triangle Oil Co.'s No. 1 Smith, M. & C. survey, Section 5; rigging up.

Winner Oil Co.'s No. 1 Pritchard, D. & S. E. survey, Section 3, Block B-4; cellar.

Jack Crosbie and others' No. 1 Pitts, T. C. R. R. survey, Section 7; total depth 2,866 feet; pumps 6 bbls.; pay in sandy lime at 2,860-66 feet.

W. R. Ramsey's No. 1 Johnson, B. & B. survey, Section 3; total depth 720 feet; drilling in red bed.

Prairie Oil & Gas Co.'s No. 1 Johnson, M. & C. survey, Section 22; total depth 2,800 feet; drilling in broken lime.

Prairie Oil & Gas Co.'s No. 2 Weatherly, M. & C. survey, Section 23; at 720 feet; cleaning out after reaming 10-inch casing.

Canyon Oil Co.'s No. 2 Whittenburg, M. & C. survey, Section 13; total depth 2,570 feet; drilling in lime.

Currie Brothers and others' No. 1 Smith, M. & C. survey, Section 14; total depth 2,415 feet; drilling in lime.

Dunigan, Dunaway & Miller's No. 1 Whittenburg, M. & C. survey, Section 13, Block Y; at 1,400 feet; drilling in red bed.

American Refining Co.'s No. 1 Weatherly, M. & C. survey, Section 18; at 3,080 feet; fishing for casing.

J. H. Middleton's No. 2 Weatherly, M. & F. survey, Section 18; total depth 3,248 feet; plugged back to oil sand at 3,044-65 feet.

J. H. Middleton's No. 1 Smith, M. & C. survey, Section 15; rig.

J. H. Middleton's No. 2 Smith, M. & C. survey, Section 15; Block Y; at 260 feet; drilling in lime.

McIlroy-Cockrell Corp.'s No. 1 Smith, M. & C. survey, Section 14; Block Y; location.

McIlroy-Cockrell Corp's No. 2 Smith, M. & C. survey, Section 14, Block Y; location.

Miller & Wetzel's No. 1 Whittenburg, M. & C. survey, Section 13; total depth 2,325 feet; drilling in lime; top of lime at 2,170 feet.

J. R. Phillips' No. 1 Weatherly, M. & C. survey, Section 18; total depth 2,270 feet; running 8¼-inch casing.

Phillips & Heywood's No. 1 Smith, M. & C. survey, Section 14, Block Y; location.

Roxana Oil Co.'s No. 1 Smith, M. & C. survey, Section 14; total depth 2,972 feet; shut down for pipe line.

Westex Oil Co.'s No. 2 Whittenburg, M. & C. survey, Section 13; total depth 2,000 feet; drilling.

Canyon Oil Co.'s No. 1 Whittenburg, M. & C. survey, Section 12; at 2,340 feet; drilling by 10-inch casing.

Centerfield Oil Co.'s No. 1 Smith, M. & C. survey, Section 10; total depth 2,915 feet; cleaning out and swabbing; no estimate.

Dixon Creek Oil Co.'s No. 2-A Smith, M. & C. survey, Section 11; total depth 2,836 feet; shut down for pipe line.

Dixon Creek Oil Co.'s No. 3 Smith, M. & C. survey, Section 11, Block Y; rig.

J. R. Phillips' No. 1 Kingsland, M. & C. survey, Section 6; total depth 2,849 feet; shut down for pipe line.

Herring & McElroy's No. 1 Smith, M. & C. survey, Section 5; total depth 2,858 feet; swabs 10 bbls. an hour; sandy lime at 2,774-2,858 feet; oil sand best at 2,827-30 feet.

W. H. Holm's No. 1 Smith, M. & C. survey, Section 12; total depth 1,400 feet; drilling in red bed.

W. E. Lenix and others' No. 1 Smith, M. & C. survey, Section 11; total depth 2,650 feet; drilling on top of gas.

Pulaski Oil Co.'s No. 1 Smith, M. & C. survey, Section 5; rebuilding rig.

Pulaski Oil Co.'s No. 2 Smith, M. & C. survey, Section 5; at 400 feet; spudding.

Pulaski Oil Co.'s No. 3 Smith, M. & C. survey, Section 5; total depth 2,135 feet; cemented 8¼-inch casing top of the lime.

Phillips Petroleum Co.'s No. 4 Smith, M. & C. survey, Section 5, Block Y; location.

Relief Oil Co.'s No. 1 Smith, M. & C. survey, Section 5, Block Y; building rig.

Roxana Petroleum Corp.'s No. 2 Smith, M. & C. survey, Section 11; building rig.

Roxana Petroleum Corp.'s No. 3 Smith, M. & C. survey, Section 11; building rig.

Twin Six Oil Co.'s No. 2 Kingsland, M. & C. survey, Section 6; total depth 2,505 feet; fishing for tools.

Twin Six Oil Co.'s No. 3 Kingsland, M. & C. survey, Section 6; spudding and shut down.

Twin Six Oil Co's No. 2 Kingsland, M. & C. survey, Section 6 total depth 2,500 feet; drilling in lime.

Travelers Oil Co.'s No. 1 Kingsland, M. & C. survey, Section 6; total depth 2,895 feet; 95 bbls. per day.

White Eagle Oil Co.'s No. 1 H. E. Smith, M. & C. survey, Section 11; total depth 260 feet; spudding.

White Eagle Oil Co.'s No. 2 H. E. Smith, M. & C. survey, Section 11; location.

White Eagle Oil Co.'s No. 3 H. E.

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For use on stills, absorber towers, closed tanks or receivers, or on pipe line to control flow of liquid. Consists of float cage with seamless copper ball.

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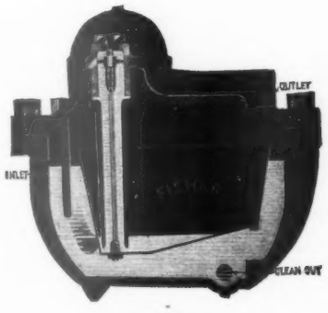
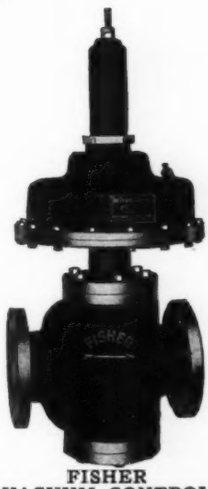


FISHER GASOLINE TRAP
Type 333
Takes gasoline out of gas lines—reduces vapor loss. Intermittent type, open bucket trap.



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Smith, M. & C. survey, Section 11; location.

White Eagle Oil Co.'s No. 4 H. E. Smith, M. & C. survey, Section 11; location.

Gates Oil Co.'s No. 1 Kingsland, M. & C. survey, Section 4; total depth 1,800 feet; drilling in red bed.

Gates Oil Co.'s No. 2 Kingsland, M. & C. survey, Section 4, Block Y; cellar.

Gulf Production Co.'s No. 1 Cockrell, M. & C. survey, Section 3; total depth 2,325 feet; drilling in lime.

Scott Heywood and others' No. 1 Cockrell, D. & S. E. survey, Section 10, Block B-3; building rig.

Newby Oil Co.'s No. 1 Cockrell, M. & C. survey, Section 3; at 200 feet; spudding.

J. D. Ward and others' No. 1 Cockrell, M. & C. survey, Section 2; total depth 620 feet; casing trouble.

J. D. Ward and others' No. 2 Cockrell, M. & C. survey, Section 3; total depth 630 feet; shut down for casing.

Badger Oil Co.'s No. 1 Lewis, B. S. & F. survey, Section 8; location.

Tex-O Oil Co.'s No. 1 Johnson, Tomlinson survey, Section 1; total depth 2,727 feet; fishing for tools.

New Domain Oil Co.'s No. 1 Christian & P. total depth 3,245 feet; swabs 55 bbls.

Dyrsdale Oil Co.'s No. 1 Weatherly, M. & C. survey, Section 17; total depth 2,460 feet; fishing for tools.

P. J. McKinney's No. 1 Weatherly, M. & C. survey, Section 17; total depth 3,020 feet; drilling good oil sand.

C. W. Spurlock and others' No. 1-B Smith, M. & C. survey, Section 8; total depth 2,850 feet; shut down for 6⅝-inch casing.

The Texas Co.'s No. 7 S. B. Burnett, rigging up.

The Texas Co.'s No. 1 Cooper, I. & G. N. survey, Section 6; at 670 feet; drilling.

Moore County

Cadman, Martin and others' No. 1 Sneed, Jr., G. & M. survey, Section 68, Block 3; location.

Landreth Production Co.'s No. 1 Sneed, Jr., Jones survey; location.

Amarillo Oil Co.'s No. 2-A Masterson, G. & M. survey, Section 49; total depth 2,485 feet; running 8¼-inch casing; 68,000,000 feet of gas.

Potter County

Amarillo Oil Co.'s No. 4-A Bivens, D. & F. survey, Section 24; total depth 2,911; feet; drilling in granite.

Prairie Oil & Gas Co.'s No. 1 Bivens, G. & M. survey, Section 42; total depth 2,648 feet; cleaning out.

Roberts County

Big Bend Oil Co.'s No. 1 Ledrick, E. L. & R. survey, Section 7; total depth 4,017 feet; shut down for orders; shale.

Wheeler County

Midwest Exploration Co.'s No. 1 Porter, H. & G. N. survey, Section 14, Block 27; location.

J. J. Rook's No. 1 Phillips, H. & G. N. survey, Section 41; total depth 2,296 feet; flows 56 bbls.

Midwest Exploration Co.'s No. 1 Company, H. & G. N. survey, Section 12; total depth 2,985 feet; fishing for 5 7/16-inch casing.

Globe Oil Co.'s No. 1 Williams-Laycock, H. & G. N. survey, Section 20; at 2,258 feet; shut down for orders.

Mid-Continent Oil & Gas Co.'s No. 1 Emler, H. & G. N. survey, Section 70; total depth 2,304 feet; shut down for orders.

McFarland & Thomas' No. 1 Ketchelhoffer, H. & G. N. survey, Section 79; total depth 2,325 feet; drilling in granite wash.

KANSAS

(Continued from Page 34)

Section 3-29-7, spudded in; Templeman & Frantz' No. 1 Snively, C NE NE SW, Section 30-23-7, a rig; Neely Oil & Gas Co.'s No. 1 Kaiser, C SW SE SW, Section 12-26-7, drilling at 350 feet; Connell and others' No. 2 Wilhite, C NE NW SW, Section 27-26-7, drilling below 500 feet; Liggett and others' No. 2, C SE SE NE, Section 36-27-6, drilling at 300 feet; Amerada Petroleum Co.'s No. 4 Kruse, C SE SW NW, Section 27-27-7, drilling below 400 feet; Phillips Petroleum Co.'s No. 3 Kruse, C NE NW SW, Section 27-27-7, spudded in; Greenland Oil Co.'s No. 4 Jobe, SE cor. NE SE, and No. 5 Jobe, C NE SE SE, Section 28-28-7, rigs up; Phillips Petroleum Co. and White Eagle Refining Co.'s No. 1 Anderson, C SE SW SE, Section 28-27-7, drilling at 700 feet; Tidal Oil Co.'s No. 1 Sears, C NE NE NE, Section 31-27-7, rig up; Lewis Oil Co.'s No. 1 McLaughlin, C NE NW NE, Section 33-27-7, drilling below 600 feet; John Rodgers' No. 3-A Laughlin, NE cor. Section 33-27-7, rigged up (a twin); No. 4 Laughlin, C W half NE NE, Section 33-27-7, rig up; Leighty & Martin's No. 1 Brown, NE cor. Lot 21, Section 19-26-8, a rig; Magnolia Petroleum Co.'s No. 6 Skaer, C NW SW SW, Section 25-27-4, rig up. Lample & Pile's No. 1 Powers, C NW NW NW, Section 34-28-6, spudded in.

The Buckeye Oil Co.'s No. 7-A McFadden, C SW SW SE, Section 25-32-4, Cowley County, was dry and abandoned at 3,442 feet. This well had a small show of oil in sand at 2,620-28 feet; set 6⅝-inch pipe at 2,985 feet, got the top of the lime at 3,070 feet; dry sand at 3,080-95 feet. No. 7 had been abandoned with a bit in the hole at 1,050 feet, and the rig was skidded and a new hole started.

The Southwestern Petroleum Co.'s No. 10 Eastman, C NE SE NE, Section 6-31-6, is a 25-bbl. well at 2,845-95 feet.

Greenwood County Completions

The Prairie Oil & Gas Co.'s No. 3 Blackwell, C NE NW SE, Section 16-24-13, eastern Greenwood County, got the top of the lime at 1,615 feet, top of the sand at 1,625-54 feet, was shot with 100 quarts and made 70 bbls. the ensuing 24 hours.

In the Teeter trend, The Texas Co.'s No. 3 Prather, C SW NW SW, Section 29-22-10, started at 50 bbls. following an 80-quart shot in sand at 2,410-30 feet. This well when it came in flowed 300 bbls. naturally the first 24 hours.

Simmons & Burk finished a failure, No. 3 Harris, C N half, Section 19-22-11. This well showed broken sand at 2,065-70 feet; got the top of the lime at 2,180 feet, and was abandoned at 2,205 feet, with no showing.

The Haverhill Petroleum Co.'s No. 3, C SE SE SE, Section 4-22-13, was good for 25 bbls. the first 24 hours after a shot at 1,568-1,604 feet.

The National Refining Co.'s No. 1 Wallace, C SE SW SW, Section 11-25-9, was a failure. Top of the lime was found at 2,260 feet; broken sand at 2,145-55 feet, and a sand which developed a hole full of water at 2,417-50 feet, total depth 2,690 feet.

Davis and others have a 25-bbl. well in No. 1 Scott, C SE NE SW, Section 24-23-8, after a shot of 110 quarts in sand at 2,595-2,630 feet.

Tom Conway's No. 1 Noller, C SW NE SW, Section 10-23-9, was shot twice in sand at 2,382-2,412 feet, but showed only 1 bbl. of oil and was abandoned as dry.

The Empire Gas & Fuel Co.'s No. 2 Lewis, C NW NE, Section 24-27-8, was dry and abandoned at 1,260 feet.

The Crown Central Oil Co.'s No. 1 Life, SW cor. NW NE, Section 13-26-9, got sand at 2,064-2,148 feet and started at 10 bbls. naturally.

The Greenland Oil Co.'s No. 20 Green, C NE NW NE, Section 10-23-9, got sand at 2,310-66 feet, shot with 200 quarts, and the well started at 100 bbls. Jim Davis and others' No. 10 Bitler, C NW SW NE, Section 12-22-10, gave sand at 2,041-2,140 feet a 360-quart shot and the well flowed 870 bbls. the following 24 hours. The pay commenced at 2,071 feet. Roth & Faurot completed a failure in No. 2 Sloughton, SE cor. NW SE SE, Section 9-23-10, total depth 2,330 feet. The Pure Oil Co.'s No. 6 Mason, NW cor. SW NW NW, Section 26-23-10, started at 40 bbls. after a 100-quart shot at 2,270-2,310 feet. Roth, Faurot and the Mission Oil Co.'s No. 4 Thrall, C E half, W half NE, Section 27-23-10, is a 10-bbl. well at 2,307-82 feet.

Able and others' No. 1 Richards, C NW NW NW, Section 7-21-10, was dry and abandoned at 2,425 feet; Ritchie & Moore's No. 2 Pixley, C NE SE SW, Section 34-21-10, dry and abandoned at 2,612 feet; same firm's No. 5 Pixley, C SW SE SW, Section 34-21-10, sand at 2,161-2,213 feet, shot with 120 quarts, 150 bbls. the following 24 hours; Phillips Petroleum Co.'s No. 5 Petroja, C NW NE SW, Section 33-21-12, dry and abandoned at 1,964 feet; No. 6 Petroja, C SE NW SW, Section 33-21-12, sand at 1,880-1,930 feet, shot with 130 quarts, 75 bbls. first 24 hours; J. H. Reid and others' No. 1 Eggan, C NW NW SE, Section 17-22-9, dry and abandoned at 2,635 feet.

New Work in Greenwood

The following new work has been reported in the various fields of Greenwood County: M. R. Buck and others' No. 1 Newman, C SW SW SW, Section 5-20-10, rig on ground; Troxel & Brookover's No. 1 Williams, C NE NE SW, Section 12-20-10, rig on ground; Prairie Oil & Gas Co.'s No. 1, C SE SE NE, Section 5-21-10, drilling at 300 feet; McCullough and others' No. 2 Bradfield, C NE NE NW, Section 25-21-10, rig; Sheedy and others' No. 2 Atyec, C SW SE SW, Section 31-21-10, and No. 3 Atyec, C SW SW SE, Section 31-21-10, spudded in; Southwestern Petroleum Co.'s No. 1, C SW SW NW, Section 35-21-10, drilling at 800 feet; Derby & Braden's No. 1 Newman, C SW NW SW, Section 24-20-9, rig up; Phillips Petroleum Co.'s No. 7 Launch, SW cor. SE SW NW, Section 33-21-12, drilling below 700 feet; Bateman & Sears' No. 1 Anderson, SW cor. Section 23-20-13, machine; Marland Oil Co. and Christy's No. 9 Hester, C SW NE SW, Section 23-23-13, drilling at 600 feet.

Greenland Oil Co. and Phillips Petroleum Co.'s No. 5 Craft, C NW NW SW, Section 25-23-8, is drilling below 860 feet; No. 8, C SW NE SW, Section 25, was rigged up; Manhattan Oil Co.'s No. 1 Dales, C SE SE SE, Section 26-23-8, rig on the ground; Phillips Petroleum Co.'s No. 2 Mosby, C SE NE SE, Section 26-23-8, drilling below 850 feet; Knight and others' No. 1 Neeler, C NW NW NE, Section 3-23-9, rig up; Manhattan Oil Co.'s No. 21 Green, C SE SW NE, Section 10-23-9, rig up; Empire Gas & Fuel Co.'s No. 33 Teeter, C NE NE SW, Section 16-23-9, rig up.

The Empire Gas & Fuel Co.'s No. 2 Atyec, C NW NE NW, Section 6-22-10, was drilling at 975 feet; No. 3, C SE NE NW, Section 6, drilling below 750 feet; Hazlett and others' No. 12 DeMalorie, C NE SW NE, Section 12-22-10, rig on the ground; Manhattan Oil Co.'s No. 4 DeMalorie, C NE NW NE, Section 12-22-10, rig on ground; same company's No. 4 DeMalorie, C SE NW NE, Section 12-22-10, rig on ground; Theta Oil Co.'s No. 1, C NE SW NE, Section 17-22-10, drilling below 250 feet; Sinclair Oil & Gas Co.'s No. 36 Browning, C NE SE SW, Section 20-22-10, drilling below 725 feet; same company's No. 37 Browning, C SE NE SW, Section 20-22-10, spudded in; The Texas Co.'s No. 5 Prather, NE cor. NW NE SW, Section 29-22-10, rig on the ground.

The Manhattan Oil Co.'s No. 8 Hartley, C SE NE NE, Section 2-23-9, was drilling at 250 feet; Mid-Kansas Oil & Gas Co.'s No. 15 Allen, C SW SW NE, Section 23-23-10, rig up; Roth & Faurot and others' No. 6 Thrall, SE cor. SW NE NE, Section 27-23-10, drilling at 470 feet.

The Empire Gas & Fuel Co.'s No. 6 Hines, C NW SE SW, Section 11-22-11, rig up; same company's No. 8 Hines, C SW NE NW, Section 14-22-11, drilling at 195 feet; Selby Oil & Gas Co.'s No. 2 Harris, C SE NW NW, Section 19-22-11, rig on ground. York State Oil Co.'s No. 6 DeMalorie, C SE NW SE, Section 32-22-11, drilling below 900 feet.

The Empire Gas & Fuel Co.'s No. 1 Off, C SE SE NW, Section 18-22-13, rig on the ground; Mid-Continent Petroleum Co.'s No. 12 Shambaugh, CNL NW, Section 22-23-13, rig up; same company's No. 2 Dihlenger, NW cor. NE NE, Section 28-23-13, rig up; No. 3 Dihlenger, C SE NE NE, Section 28, spudded in; No. 8 Dihlenger, C SE NW NE, Section 29, drilling below 600 feet.

Connell & Day have a rig up for No. 2 Huntsinger, C SW SW SE, Section 1-22-10.

Harwood & Winters' No. 1 Carpenter, C SW SW NE, Section 19-24-11, was rigged up. John Stark was drilling below 325 feet in No. 1 Lindaman, C NW NW SW, Section 19-24-12.

Greenland Oil Co.'s No. 1 Scott, C SE SE SW, Section 24-23-8, drilling at 550 feet; Greenland Oil Co. and Phillips Petrolenm Co.'s No. 7 Taylor Craft, C SE NW SW, Section 25-23-8, drilling below 300 feet; Mission Oil Co.'s No. 9 Dales, SW cor. NE NW, Section 25-23-8, drilling below 600 feet; Kellas Syndicate's No. 1 Noller, C SW NW NE, Section 3-23-9, rigged up; Tom Conway's No. 1 Noller, C NE NE SE, Section 9-23-9, rig on the ground; Manhattan Oil Co.'s No. 21 Green, C SE SW NE, Section 10-23-9, rig up; Phillips Petroleum Co.'s No. 5 Teeter, C SW SW SW, Section 15-23-9, drilling at 700 feet; Empire Gas & Fuel Co.'s No. 32 Teter, C NE SE NW, Section 16-23-9, drilling below 800 feet; No. 33 Teter, C NE NE SW, Section 16, a rig; White Eagle Oil & Refining Co.'s No. 6 Morris, CE half NW SE, Section 19-23-9, rigging up.

Day and others' No. 1 Fuller, C SE SE SW, Section 1-22-10, was rigging up; Mid-Kansas Oil & Gas Co.'s No. 3 Pixley, C SE NW NW, Section 8-22-10, spudded in; Sinclair Oil & Gas Co.'s No. 37 Browning, C SE NE SW, Section 20-22-10, spudded in; Mid-Kansas Oil & Gas Co.'s No. 15, C SW SW NE, Section 23-23-10, drilling at 300 feet; Roth, Faurot and the Mission Oil Co.'s No. 43 Thrall, SE cor. SW SW, Section 28-23-10, drilling at 480 feet.

Empire Gas & Fuel Co. had a rig up for No. 1 Kipfer, C NE SW SE, Section 11-22-11; Phillips Petroleum Co.'s No. 5 Hilliard, C SE SE SW, Section 33-22-11, rig up.

T. K. Simmons' No. 2 Funkhauser, C NE NE NW, Section 4-22-12, and No. 3 Funkhauser, C SW NE NW, Section 4-22-12, rigs on the ground; Fisher & Lauck's No. 2 Funkhauser, C NE NW NW, Section 4-22-12, rig up; Phillips Petroleum Co. and Skelly Oil Co.'s No. 2 Pedroja, C NE NE SE, Section 6-22-12, drilling at 480 feet; Braden Brothers' No. 1 Young, C SW SE SE, Section 22-22-13, drilling at 400 feet.

Roxana Petroleum Corp.'s No. 7 Marshall, C SW NE NW, Section 34-24-9, rig; Roth & Faurot's No. 9 Burkett, C NE SW NW, Section 12-25-8, rig.

J. B. Murphy's No. 1 Teegerdin, C NW SW NW, Section 29-24-11, rigged up to drill deeper; Ward & McGinnis' No. 3 Wigging, C NW NW NE, Section 30-24-11, rig; No. 2 Wigging, C NE NE NW, Section 30, spudded in; Mississippi Valley Oil Co.'s No. 1 Ott, NW NW SW, Section 19-24-12, drilling at 660 feet.

Roth & Faurot's No. 1 Henderson, C NW NW SW, Section 1-26-11, drilling at 400 feet; Mississippi Valley Oil Co.'s No. 1 Langley, C SW SE, Section 4-21-11, rig on ground; Phillips Petroleum Co.'s No. 3 Petroja, C SW SE SE, Section 32-21-12, rig on the ground; R. G. Gillespie's No. 1 Reeble, C SE NW SW, Section 9-20-12, rigging up.

Chautauqua Operations

New work in Chautauqua County includes the Anglo-Texas Oil Co. and Barker's No. 2 Newbecker, C NW SW SE, Section 19-31-9, a rig; Conley and others' No. 1 Thompson, C SE SE NW, Section 1-30-9, spudded in; Pulaski and others' No. 1, NE cor. NW NW SW, Section 12-20-9, drilling at 750 feet; Sharpless & Denman's No. 1 C SW SW NE, Section 14-30-9, drilling below 1,050 feet; Sonner and others' No. 2 Webb, C SE SE SE, Section 15-31-10, spudded in; Neely Drilling Co.'s No. 1 Miller, C SW SW SW, Section 21-31-10, drilling at 300 feet; Empire Gas & Fuel Co.'s No. 2, C SE NW SW, Section 23-31-10, drilling below 520 feet; Neely Oil & Gas Co.'s No. 1 Rettis, C NW NW NW, Section 28-31-10, drilling at 300 feet; Denman Brothers' No. 1 Julio, C NW NW NE, Section 35-31-10, rigged up; Manhattan Oil Co. and others' No. 1 Kinney, CE half, NW NW, Section 11-30-11, machine in; Griffith Bell and others' No. 1 Oliver, C NE NW NW.

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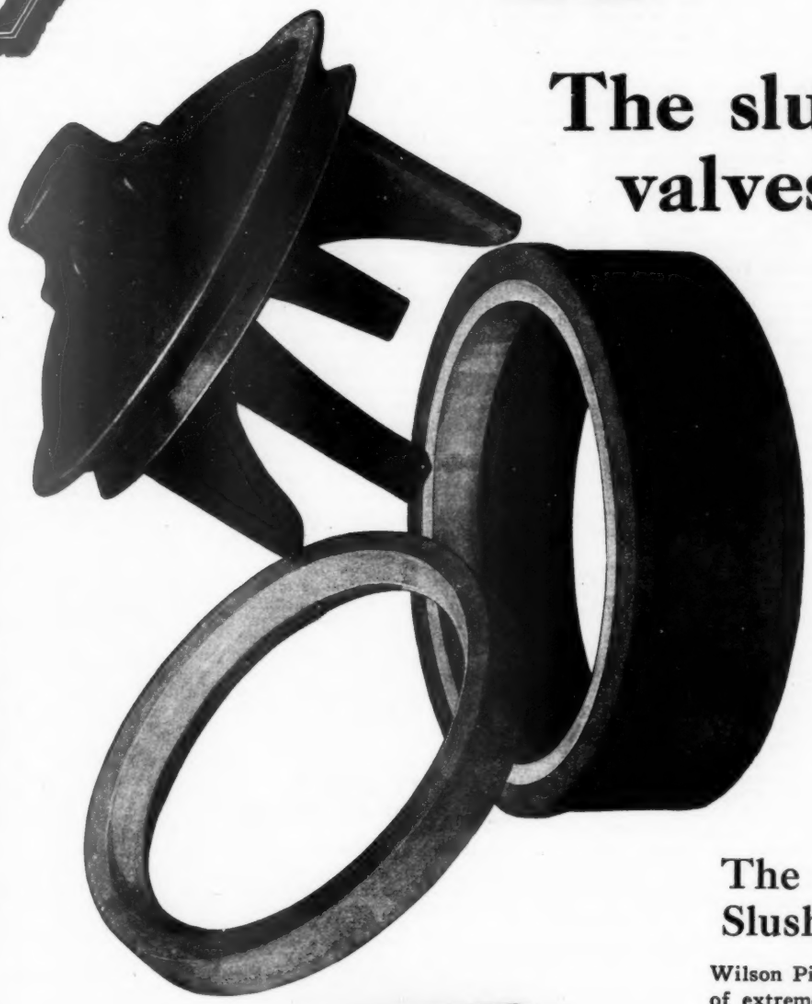

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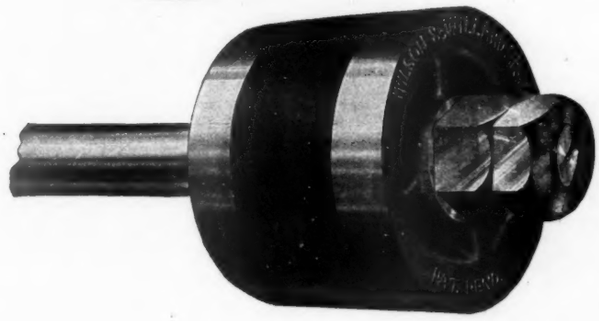

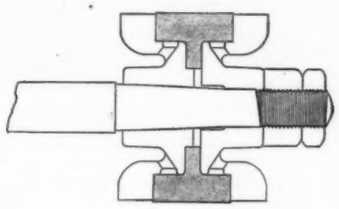

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Section 1-32-10, drilling at 300 feet; same operators' No. 1 Geannert, C SW SE SE, Section 11-32-10, spudded in and shut down. Leighty and others' No. 1 Townsend, C SE SW NE, Section 20-34-9, rigged up.

In Sumner County, the Roxana Petroleum Corp.'s No. 1 Phillips, C NE NE SW, Section 17-32-2, was shot with 209 quarts in sand at 2,955-67 feet, and started at 100 bbls. It may be deepened. The oil is 37.2 gravity.

The Skelly Oil Co. and Morris have spudded in and shut down No. 1 Richardson, SW cor. Section 30-30-14w, Barber County.

Marland Oil Co. has moved in a rig for a test on the Schwartz farm, C NW NE NE, Section 27-34-2, Sumner County.

In Russell County, T. C. Johnson's No. 6, C NE SE NW, Section 5-12-15w, made 120 bbls. the first day from sand at 2,781-84 feet. The Mid-West Oil Co. is building a rig for No. 18 Oswald, C SW NW NW, Section 8-12-15w, and for No. 19 Oswald, C NW SW NW, Section 8-12-15w. The Valerius Oil & Gas Co. has spudded in No. 16 Oswald, C SE SW NW, Section 17-12-15w.

The Prairie Oil & Gas Co. has started drilling No. 2 Welch, C SE SE SW, Section 35-20-6w, Rice County.

Patton & Cassoday have rig up for No. 1 Yeoman, C SE, Section 35-28-7w, Kingman County.

Doctor Rood and others who got a 1,500,000-foot gas showing in sand at 2,920-24 feet, found only a showing of oil beneath the gas in shale and lime at 2,924-35 feet, and were drilling ahead, in their test in the C NW SE NW, Section 14-20-12w, Barber County.

In Lyon County, the Manhattan Oil Co. has a rig on the ground for No. 1 Putnam, C SE SE NW, Section 6-16-12. Able and others' have a machine in for No. 1 DeLong, C NW SW SW, Section 22-18-12. M. R. Buck is rigged up on No. 1 Eskridge, C NE NE SE, Section 36-19-11.

In Marion County, the National Refining Co.'s No. 3 Seibel, C SE NE, Section 17-21-4, is spudding in.

Garnett District Activities

The Garnett area, in Anderson County has been a busy field all winter. It is shallow territory where practically all wells are shot yielding a first day production out of all proportions to their output a few days after completion. A batch of 34 completions covering a period of a month show 8 dry holes, and 2 gas wells, but an average initial production of the oil wells after a shooting of 48 bbls., ranging from 10 bbls. to 110 bbls. It is a "poor man's field," none of the very largest companies operating there. The Tidal Oil Co. and the Southwestern Petroleum Co. are the only organizations operating in the deep sand fields of Kansas that are named in the report covering the month's completions. The Garnett Field is also one of the best gas fields in Kansas.

GULF COAST FIELDS

(Continued from Page 38)

a well making 400 bbls pinched in, on a 11,000-acre tract on what is known as the Orchard Dome, northwest of Rosenburg, Fort Bend County. On the boundary between Fort Bend and Brazoria County, the Rycade Petroleum Corp. has a shut in well on 11,000-acre tract. It is shut in to 100 bbls. The Humble Pipe Line Co. is laying 12 miles of 8-inch pipe line to the well from its West Columbia pumping station. In view of the fact that none of these Coastal Pools cover more than 3,000 acres one can readily perceive that there is little danger from offset drilling, or overproduction from either of these two new pools.

Over in Liberty County, the Humble Oil & Refining Co. has an 800-bbl. well on the west side of the Trinity River, around which it has practically all the available acreage and therefore is safe from offsets and consequent overproduction. The same company has a 500-bbl. producer on the east edge of the Piedras Pintas Pool down in Duval County, but there the situation is somewhat different and offsets have been started. The Humble Co. is drilling No. 5 Walsh to the south of the producer, around 2,800 feet and is changing from a gasoline driven rotary to steam. Moody and Seagraves' No. 1 is around 2,600 feet and the Grayburg Oil Co.'s No. 1 is around 400 feet. The Magnolia Petroleum Co. is rigging No. 1. The Humble Co.'s No. 5 Schallbert off the Palangana Dome, north of Piedras Pintas, is drilling around 2,150 feet.

The Gulf Production Co. has a prospective dome all to itself near Fannette, a short distance southwest of Beaumont, around which it has drilled six wells and is now drilling another formation test. The same company has another prospect at Long Point, between the Big Creek and Damon Mound Pools. The Gulf Co. has the Big Creek Pool sewed up with another company, drilling jointly.

Louisiana Prospects.

Over in Louisiana, the Gulf Refining Co. and Standard Oil Co. of Louisiana are jointly developing a prospect south of Stark, Calcasieu Parish, and have all the likely looking acreage tied up in case anything does develop. The Rio Bravo Oil Co. is drilling on a 4,500-acre plantation at Glenwild, St. Martin Parish. Leland and Wilcox are drilling on a big block at Blanche Cote Island, St. Mary Parish. The Yount-Lee Oil Co. has things pretty well leased up around Hackberry Dome in Cameron Parish and a deep test is scheduled on a 35,000-acre block at Johnson's Bayou in the same parish.

So much for the new pools and prospective fields. The Texas Co. has 400 acres at Boling, all of which now looks good. The Gulf Co. and another interest had the Boling Dome tied up on the east and southeast sides, expecting to find the production on those flanks of the saline uplift. Territory on the west and northwest flanks was overlooked, but The Texas Co. upset the dope by getting the original sell on the northwest side. The open acreage was quickly taken which accounts for the activity on the west and northwest flanks. Wells are now drilling by The Texas Co., Atlantic Oil Producing Co., Sun Co., Sinclair Oil & Gas, Oxford Oil, Humble and Gulf. The Vacuum Oil Co. has made a location.

The acreage on the southeast side of the old Spindletop Pool, where the Yount-Lee Oil Co. got a 5,000-bbl. well January 13 at 2,780 feet, is all held by the owners of the deep sand producer. Consequently there is no rush of work there. The Yount-Lee Oil Co. is just rigging No. 4 McFadden and drilling No. 2 Gladys at 1,985 feet. The same company's deep sand well on the southwest side at Sour Lake is looked upon rather as a flash at 4,250 feet and operators are skeptical about starting any deep sand work there.

Batson Pool

The deep sand opened on the northwest side of the Batson Pool by the Kirby-Capitol Oil Co. operating jointly, has not been very encouraging to date. The first big producer sanded, was worked over and finally settled down to a 150-bbl. pumper. The Sun Oil Co's. No. 75 Hooks came in February 6 flowing initially 1,200 bbls at 3,608 feet, but soon eased off to a 200-bbbl. well. The Peer Oil Co.'s No. 1 Christian is rated only as a 40-bbl. pumper at 3,225 feet. The Navarro Oil Co.'s No. 1 Autry, west of the Hodges, is drilling around 3,875 feet, or away below where production was found in the others. The Kirby-Capitol joint No. 4 Hodges, is drilling below 2,300 feet. Last week The Texas Co. abandoned No. 1 La Jarza on the east side at 3,900 feet, which dissipated possibilities for a deep sand on that side of the pool.

Work in the Orange Pool centers on the Chesson acreage in the middle of the district, along Cow Bayou and east of that stream. The Humble Oil & Refining Co. set casing in No. 25-A Chesson at 4,850 feet. The Orange Petroleum Co.'s No. 11 Chesson is sidetracking around 4,635 feet. The Kishi Development Co.'s No. 7 McGuire on the east side of Cow Bayou is fishing at 4,800 feet. The Rycade Petroleum Corp. is setting liner in No. 1-C, Cow Bayou at 4,850 feet. The Sun Oil Co.'s No. 1 Caren is drilling around 4,700 feet. The Gulf Production Co.'s No. 2-B Kishi-Lang is deepening at 4,645 feet and No. 8-B is drilling around 4,400 feet. A location has been made for No. 20 Hager fee.

On the east side of the Hull Pool, the Republic Production-Houston Oil Co.'s joint Nos. 51, 59, 60 and 99 Dolbear are working over. No. 118 is drilling at 2,455 feet. New tests include the Empire Gas & Fuel Co.'s Barngrover, Higgins Oil & Fuel Co.'s No. 1 Armlin and No. 19 Merchant, Gulf Production Co.'s No. 16 Baldwin fee, and The Texas Co.'s No. 1 Hannah. The Gulf Co.'s No. 12 Scarborough will be drilled deeper. A total of 15 wells are drilling or being worked over in the pool.

Humble Pool

In the Humble Pool, Johnson and others' No. 1 Morris on the south end, is being worked over. These parties have three deep tests scheduled for the Morris. Hamm & Co. No. 1 Bailey, is drilling. The Sun Oil Co.'s No. 1 Bender is a deep test. The Southern Petroleum Co. is working over an old well on the Landslide. The Houston Light & Power Co. has completed a high voltage line to the pool from its power station on the Houston channel and the field will be electrified. The power will be used to pump wells. High voltage lines have been extended to the Goose Creek Pool and Baytown refinery for the same purpose.

In the Vinton, La., Pool, The Texas Co.'s No. 1-C Gray, is around 3,875 feet. No. 15 Gray, will be worked over. The Vinton Petroleum Co.'s No. 54 Gray is at 2,135 feet. No. 7 Vincent is around 1,555 feet. Casing has been set at 2,150 feet in No. 17 Rescue. Marrs McLean's No. 9 Gray, is at 1,545 feet. Atkins and others' No. 1 Johnson is drilling at 1,365 feet. The Gulf Refining Co.'s No. 3 Gray is at 1,235 feet. Packer is being set in No. 65 G. N. G at 2,175 feet. No. 38 Star is at 4,135 feet with a derrick up for No. 37 Star.

HIGH GRAVITY WELLS REGARDED AS FREAKS

(Continued from Page 38)

considered out of its element, generally producing from shale and sand formations. The shale packs around the screen and the wells are difficult to keep producing, eventually showing a large percentage of salt water.

The old method of grading into Class "A" and "B" still remains in force. These grades were established in 1923. There is a difference of 25 cents between the grades, "A" commanding the higher price. "A" grade is defined as follows by all the pipe lines:

Viscosity—Not less than 100 seconds at 100 degrees Fahrenheit—Saybolt.

Sulphur—Not over 4 per cent.

Baume gravity—Not over 25 at 60 degrees Fahrenheit.

Cold tests—Of distillates having viscosity of 1,000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees F.A. S.T.M. method.

"B" grade embraces all coastal crude oil which does not meet the tests for "A" grade.

In other words Blue Ridge, Pierce Junction and such pools run to gas oil and grade as B. About 30 per cent of the Hull Pool is B grade and 40 per cent of the Goose Creek Pool. The same percentage applies in the Orange Pool.

Based On Products

Modern methods of refining have changed the standards for the purchase of crudes. This is the case in the Coastal heavy gravity fields, as it is in the other sections of the country. Hence, it is we now find the crudes divided into gravities, running as high as 52, whereas a few years ago one price dominated all grades in a field or division. The refining end fixes the price the producer is to receive for his crude, the price being based on distillation tests under pressure made at the refineries of the major companies. This has gone so far that refinery departments now dictate to the producing department what shall be paid for leases in new territory, as well as what the pipe lines shall pay for credit balances.

That the Boling Dome is not essentially different from the others with respect to gravity is exemplified by the fact that the Atlantic Oil Producing Co.'s No. 2 Taylor there, a wild gas well, spraying 1,500 bbls. of oil is only 25 gravity, or about the usual Coastal grade. It is in the sand at 2,963 feet, whereas The Texas Co.'s producer is around 3,338 feet. The wild gasser is about 600 feet northwest of The Texas Co.'s high gravity well. The Atlantic Oil Producing Co. drilled its No. 1 Taylor to 3,285 feet, got nothing and has plugged back to 3,000 feet for a test. This will illustrate the freakish character of the Coastal domes, both with regard to the gravity of the crude and the depths of the pay.

It is too early to make any predictions regarding the deep sand production off Spindletop Dome. The next well may be low gravity and upset all the dope.

The high gravity well at Boling is unusual in all respects. Unusual in the gravity and unusual in the period of time it has been flowing. The well came in December 14, rated at from 8,000 to 10,000 bbls., but pinched down to an average of 4,500 bbls. It has produced over 200,000 bbls. to date. Late reports show the Spindletop deep sand well making 20 per cent water.

Taken all in all the most desirable wells in the Coastal region are those that register from 19 to 25 gravity, with temperatures from 60 to 80 degrees. This is the grade best for its lub content and the wells that produce longest, either flowing, on air compressors or jacks.

MEXICAN FIELDS

(Continued from Page 44)

with a showing of oil. Sol Oil Co.'s No. 1 Etienne, (Federal zone), cemented 8-inch in gray lime at 1,540 feet. The Texas Co.'s No. 6 Isleta cemented 8-inch in gray lime at 1,550 feet. Tampascos Oil Co.'s No. 14 Robles is fishing at 1,000 feet. Empire Gas & Fuel Co.'s No. 4-B Lot 11 W. Maguabes, is in gray shale at 1,160 feet, and No. 11, Lot 16, same sector is spudding. Transcontinental Petroleum Co.'s No. 22, Lot 1 Tanchicuin, is in gray lime at 2,260 feet; No. 8, Lot 14, cemented 8-inch in the San Felipe at 1,156 feet and No. 22 Barbarena is rigging. U. S. Mexican Banana Co.'s No. 1 Herradura is in gray lime at 2,400 feet.

In Cacalilao

In the Cacalilao sector of the northern fields operations follow: Rich Mex Oil Co.'s No. 105, Lot 1 Cacalilao, is in the San Felipe at 1,460 feet. Transcontinental Petroleum Co.'s operations in Lot 4 follow: No. 167 cemented 8-inch in the San Felipe at 1,200 feet; No. 240 has done the same at 1,230 feet, same formation; No. 250 is in the San Felipe with some gas showing at 1,340 feet; No. 251 is in lime at 1,950 feet; No. 252 cemented 8-inch in the San Felipe at 1,230 feet, and three tests are rigging. In the Paciencia, just north of the Cacalilao, Transcontinental's No. 46 cemented 8-inch in the San Felipe at 1,245 feet.

South Fields

In the south fields, Huasteca Petroleum Co.'s No. 65 Cerro Azul is in hard gray shale at 620 feet; No. 71 is in blue shale at 85 feet; No. 72 is in brown shale at 940 feet; No. 58 Tierra Blanca is in gray shale at 1,753 feet; No. 60 cemented 10-inch at 1,781 feet in brown shale; No. 61 is in gray shale at 1,920 feet, and two derricks are up over new locations. Mexican Gulf Oil Co.'s No. 55 Toteco is in gray and brown lime at 2,046 feet. Mexican Eagle Oil Co.'s No. 26 Alazan is a deep hole at 2,715 feet in shale and lime; No. 26 Cerro Veijo cemented 8-inch in hard gray shale and shells at 1,650 feet; No. 32 cemented 6-inch in hard gray shale at 2,030 feet; No. 1, Lot 2 Escobal, down in the Furbero district, is fishing again at 2,976 feet, shale and shells, and No. 3 Mecapepec, same district, is drilling in hard sandy rock at 1,740 feet. Penn Mex Fuel Co.'s No. 3 La Pita is in gray sandy shale at 3,512 feet. Transcontinental Petroleum

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Co.'s No. 1, Lot 16 Zacamixtle is reported fishing for cones at 2,276 feet.

Northern Miscellany

Among the northern miscellaneous pools Ebano easily ranks the first in importance. Mexican Petroleum Co.'s operations there follow: In Chapacao: No. 41 is in lime shells at 1,310 feet; No. 44 is in gray lime at 1,710 feet; No. 54 is in gray lime with a showing of oil at 1,590 feet; No. 55 is in gray lime at 1,833 feet; No. 57 is in the same formation at 1,520 feet, and three locations more are being made ready. In Chijol, Mexican Petroleum's No. 39 is in hard blue lime at 1,525 feet; No. 42 is in gray lime at 1,605 feet with fluid in the hole; in its Silva three locations are rigging; in La Dicha, No. 58 is in gray lime showing 100 bbls. at 1,849 feet; No. 65 is fishing in gray lime at 2,190 feet and No. 76 is in blue shale at 1,085 feet; in the Midway, No. 6 is in white lime at 2,210 feet; No. 8 cemented 8-inch in gray lime at 1,245 feet; No. 13 San Pedro is in brown shale at 1,950 feet and No. 14, same, is in gray lime at 1,915 feet, while No. 16 cemented 8-inch in gray lime at 1,391 feet.

In the Marland Field, Cia. Petrolero Franco Espanola's No. 37 Limon is in broken lime at 2,055 feet; No. 43 is rigging standard tools to drill in at 1,430 feet; No. 44 is spudding and No. 45 is rigging.

At Los Esteros, American International Fuel Co.'s No. 21 is in white lime at 3,020 feet, and its No. 25 is in gray lime at 1,800 feet.

In Corcovado, La Corona Petroleum Co.'s No. 21 Lot 6, is in shale at 600 feet, and No. 22 there is a derrick. Mexican Gulf Oil Co.'s No. 24 Chapacao (Corcovado) cemented 8-inch in gray lime at 1,430 feet, and No. 34 is doing the same at 1,200 feet.

At Topila, Credito Petrolero's No. 2 La Mula is a deep hole in white lime at 2,510 feet. Cia. Pet. Financiera is in hard gray shale at 1,305 feet in its No. 2, Lot 14 Pac. de Agua. Mexican Fuel Co.'s No. 21 Santa Fe is cementing 8-inch in gray lime at 1,660 feet.

National Lines, in its Chapacao right of way, has its No. 27 in gray shale at 826 feet; No. 28 is a deep hole in the Tamasopa at 2,275 feet; No. 31 is in gray lime at 1,555 feet and No. 32 is rigging. In the Limon Federal zone, Panuco River, National Lines' No. 30 is being made a deep test, the drill being say 2,850 feet in gray lime.

Up in Altamira, Rich Mex Oil Co.'s No. 1 Lot 20, is in gray lime at 2,080 feet, having showings of oil and gas that are proving to be of interest.

In the Caracol, Venable and others' No. 32 cemented 8-inch in the San Felipe at 1,714 feet.

Record Time

What is now considered to be record time in drilling a well to completion in the northern fields has just been made by an East Coast Oil Co. crew in the Panuco Field. The well is noted in the introduction as No. 52 Lagunda de la Milpa, finished at 1,670 feet, rated 300 bbls. It was spudded January 23 and finished February 5. The division of time was eight days' actual drilling and four days' allowance for cementation of 8-inch casing, a total of 12 days. The drillers were Bob Adams, W. R. Riddle and Tex Richardson.

SOUTHWEST TEXAS FIELDS

(Continued from Page 44)

the Texas Railroad commission, was called in but the rocks coming from the well endangered the lives of the workmen. It was one of the biggest and best wells in the field and came from a new sand. It is a little over a mile to the southwest of the nearest gas well of the Carolina-Texas Oil and Gas Trust.

Judge H. E. Bell, chief oil and gas supervisor, after a personal inspection of the well, notified the operators verbally that runaway oil and gas wells must be a thing of the past at once and announced a further rewriting of the rules of the oil and gas division.

Estimates that the well made 40,000,000 feet are ultra conservative. It was never gauged, but compared with other wells and the size of the casing, it is claimed, is wasting more nearly 100,000,000 feet of gas than 40,000,000. The well is making an enrmous amount of salt water. The casing dropped 30 feet into the hole which permitted the surface earth to be blown away by the gas which undermined the derrick.

Officials of the Oil and Gas Division express belief they will be able to have the well under control soon. "Curly" Newton of the Border Gas Co. at Laredo, with a reputation for being able to handle runaway wells, is assisting in the effort to control the gasser.

Medina County

Several new wildcat tests are announced for Medina County and further success has been had in the pumping of the 966-foot wells in the Ina Field 10 miles south of Hondoo, the county seat. Golden West Oil Co. which recently installed a California type pump which was successful in handling the loose sand in which the oil is produced, has been getting around 200 bbls of oil and a little water from its wells. No. 3, after considerable pumping, improved to the point where it flowed about 100 bbls. No 4 Golden West on the Regina Schmidt lease is drilling in and will soon be a well.

Gibson Oil Corp. which recently closed a deal in the Texas Panhandle whereby it turns over to Phillips Petroleum Co. the development of its 4,500-acre lease with one 300-bbl well and five wells drilling, has announced that as a result of that deal it will give more attention to South Texas and, in addition to developing its Ina field property with two wells now producing, will drill three wildcats in the county this summer. It has started drilling No. 3 Viola Wilson one location south of its No. 1 and one location east of its No 2 and has the location for No. 4 one location east of No. 1 Gibson; has also closed a deal for a block of leases south of D'Hanis in the western part of the county and four or five miles west of the Taylor 356-foot well of the Medina Oil Co. that made 100 bbls of oil in a day. Rig will go in for this Gibson well on the Saathoff lease this week. A major interest is also arranging to drill in that part of the county and W. A. Stephens has closed a lease and announced he will drill south of the Saathoff. H. J. Hand drilling in survey 544 on part of the Saathoff lease the past week got a shallow showing at 461 feet and is setting casing to test.

Medina Oil Co. on its No. 1 Taylor at 356 feet set and cemented casing but the cement remained mostly inside the last joint of casing and when drilled out failed to keep the water back. It has been reset and will be tested again in a few days. Ina Oil Co is preparing to drill in the western part of the county and has started to drill on the Moses Griffin survey No. 343 immediately north of Witherspoon Oil Co.'s No. 1 Nixon on survey 133. Witherspoon is down 400 feet. These wells are about a mile west of the nearest Ina field production. Another mile due west from them D. E. O'Brien has made a location in the southeast corner of the southeast 40 acres of the southwest quarter of the J. C. Jay survey No. 531. A little farther west and a little south Buchanan & Tyrrell in the northwest corner of survey 528 tested the 1,100-foot sand but failed to get enough oil to make a well and have resumed drilling and are down around 1,700 feet and expecting to go to the Edwards Lime. Arnett Oil Co. is abandoning its No. 2 Nixon on survey 14½ and is pulling the casing and plugging the hole. It tested a little oil but seems to be too far south. The rig will be moved to the location for No. 3 which is 300 feet east of No. 1, the No. 1 being a producer at about the regulation depth of the Ina Field. Gibson Oil Corp. is arranging to experiment with an Ingersoll-Rand air compressor in its wells on the Viola Wilson tract in the Ina Field to handle the loose sand.

Tests of the Ina Oil field lub which is a low gravity oil, according to J. E. Walsh of the Gibson Oil Corp. who is back from New York, indicate that it has a very low cold test. A sample was shown experts in the East who so pronounced it.

Bastrop County

Johnson Brothers' No. 1 Trigg, which tested 80 feet of Serpentine in southwestern Bastrop County, at about 1,700 feet found it dry and is now drilling at about 1,900 feet and will continue to the Edwards lime. The Serpentine was mixed with shale. Mahone & Wilford have a location east of Elgin in northern Bastrop County on the Dunk farm of 45 acres in Joseph Black Survey No. 45. Andrews Petroleum Co. topped the Austin chalk at 2,156 feet in No. 1 Brundage east of Elgin and is now at 2,300 feet repairing the boiler. West of Elgin, in the northeast corner of Travis County, Humble Oil & Refining Co. in No. 1 Voelker is drilling at about 1,070 feet, a new well. Humble drilled two other wells in that territory and got a little Serpentine in each with a showing of oil. This is a further attempt to find the Serpentine with production in it. Cranfil & Reynolds have not yet spudded in their test on the Louis Fisher tract, 2 miles west of Elgin but expect to soon. Coyle-Concord (Skinner) No. 1 Haywood is shut down at 3,002 feet, the contract depth, but may drill deeper.

Bee County

Moody-Seagraves' No. 1 Welder in Bee County, east of Beeville, has drilled out the cement plug after setting and cementing by the Halliburton process a string of 4½-inch casing and bailed down; the cement seems to have shut out the water that caused trouble after the 6⅝-inch had been set. The well has been drilled in and a liner is being set and the well will be bailed in and tested this week. Depth is 2,646 feet and they think they have an oil well. Several additional new tests in Bee County are waiting on the showing when this well is tested.

Caldwell County

Reiter-Foster Oil Corp. has the second fishing job in the No. 1 Brown, south of Dale in Caldwell County at 2,230 feet with about 13 joints of drill stem in the hole. This is the well that tested a little oil (barrel or so) in the Serpentine at 1,952 feet. E. L. Smith who abandoned temporarily his location at Burdette Wells when the Boling Dome Field was discovered and moved the rig there is now rigging up at Burdette Wells and will drill soon. This is a little northeast of the Luling oil field.

Bexar County

Milham Corp.'s deep well in the Somerset shallow field in Bexar County has been abandoned at 5,361 feet in the lower Cretaceous formation. The company planned to carry the hole down until it was through the Cretaceous but the 3-inch drill stem and the small hole was too small. A fishing job was successfully finished but they were afraid to drill deeper. The well added to the knowledge of geology in the field but failed to make a producer. It is the deepest test in this immediate territory and one of the few to that depth in south Texas. Texas Southern which has been drilling a deep test in Somerset abandoned its test at about 2,390 feet in the Edwards lime and dry on the Avant lease.

Comal County

A 5,000-acre block is being got together in Comal County, near the Bexar County line and it is understood a test is planned soon.

DeWitt County

Cuero Oil & Gas Co. is testing No. 1 Holzappel in DeWitt County, south of Cuero, at 2,580 feet. Tools went into the hole late last week to drill in.

Piedras Pintas Salt Dome

Humble Oil & Refining Co. is drilling at 2,700 feet in the No. 5 Walsh on the Piedras Pintas salt dome in Duval County, it being 450 feet south and a little east of No. 4 Walsh, the discovery well, which is pumping and flowing around 700 bbls. daily. It came in December 20. Moody-Seagraves and William F. Morgan are drilling at about 2,500 feet in No. 1 Walsh, an offset to the west and Magnolia is about rigged up to start a test a little more than an offset to the northwest. Grayburg, in the lower edge of Survey 245, is drilling at 700 feet and Hughes with derrick up on Survey 12, a distance of 1,800 feet north of the

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discovery well, at last accounts was still waiting for a rig from Corsicana. Depth of the discovery well being 3,623 feet it will be the last of March or first of April before another well can be brought in.

Humble Oil & Refining Co., which has been running one rig on the Palangana salt dome, a few miles north of the Piedras Pintas salt dome, is drilling at 2,000 feet in No. 4 Schallert and the well is looking fairly good from one standpoint, namely, that at a shallower depth other tests made on that dome during the past two years have been going into rock salt. Tom Graham, drilling No. 1 Beall in the northeast corner of Duval County, is down about 600 feet, having lost several days drilling recently. The well is far removed from any production and is wildcat.

Edwards County

X. K. Stout is drilling at about 1,500 feet in Edwards County on the Peterson ranch in the Pennsylvania lime.

Fayette County

Red Bank Oil Co.'s No. 1 Steinhauser is down 1,500 feet. The crew was pulled off the well to run a core in a well in the city of Flatonia that was being drilled for a water well for the city and which ran into a showing of oil at 520 feet late last week. Red Bank's test is a few miles north of Flatonia. O. W. Killam is drilling at 2,200 feet in No. 1 Koether, a few miles north of Schulenberg.

Guadalupe County

The Texas Co. has arranged to drill two wells in Guadalupe, southeast of Kingsbury on a block of leases belonging to E. L. Smith Oil Co. Location for the first test has been made on the August Glenwinkle farm, a few miles south of the Guadalupe County end of the Luling Field. On the McKean farm in the western edge of the proven field where general opinion had it that gas was the main product, North & South's oil well came in for unusually big production at this time, around 1,000 bbls. or better. Three wells on the Allen lease have been completed by North & South, each good for about 400 bbls. daily. Humble Oil & Refining Co. has spudded in No. 1 Wohlfarht east of Marion and west of Seguin and is drilling at about 500 feet. This is a test due to finding Serpentine in the slushpit of a well drilled nearby a year ago.

Hidalgo County

United Production Co. completed No. 1 Oblate Fathers in Hidalgo County to a depth of 2,000 feet, the contract depth and is negotiating to drill deeper. It is dry at 2,000 feet.

LaSalle County

DeLange, Eiser Development Co. is drilling at 220 feet on the water well on the Robie ranch (survey 102) in the southeast corner of LaSalle County, preparatory to spudding in an oil test and is rigging up for the oil test.

George B. Pickett is moving to the location for his No. 2 in Live Oak County on the George West ranch, No. 1 being temporarily abandoned at 2,552 feet in the Cook Mountain Lime. A core failed to indicate oil.

McMullen County

Moody-Seagraves' No. 4 Jacobs, in McMullen County is a potential oil well at a depth of 1,250 feet. It ran into a showing at that depth and has set casing to make a test. The well is south and a little east of the old shallow Crowther Pool in northeast McMullen County and is north and a little west of the Calliham Pool where oil is had at 750 feet. The new well is on a structure worked out last summer by Harry Orchard, geologist, for Moody-Seagraves and is on leases secured by Moody-Seagraves from the Grubstake Investment Association last August. There are 42,000 acres in the block. The Jacobs No. 4 was located from three other wells drilled in a row on the Jacobs lease, the two outside tests dry, and the center, No. 3, showing a little oil. No. 4 was moved a few hundred feet to the northwest of No. 3 and seems to have a good chance of making a well. It is the first location made on the block by the Moody-Seagraves geologist, the other tests having been drilled by the Grubstake.

Eugene Sights' No. 1 Franklin, a few miles north of Tilden, the county seat of McMullen, tested good for about 5 barrels at 1,384 feet and has resumed drilling. To comply with the lease requirements and perpetuate the lease it was necessary to get a well that would pump 15 bbls. for 30 days. The test is now drilling at about 1,700 feet. It is in north central McMullen and about 15 miles northwest of the Calliham Pool.

San Patricio County

Plateau Oil Co. and Texas Pacific Coal & Oil Co. operating jointly on a block of leases along the San Patricio-Live Oak County line have brought in No. 2 Collins on the San Patricio County side of the line good for 40,000,000 feet of gas at a depth of 2,368 feet and with a rock pressure of 1,070 pounds. The gas is perfectly dry and free from water and will be turned into the line of the Southern Gas Co. this week and brought to San Antonio. These companies drilled some wells in that district last year and two made gas wells nearly as large as this but sanded up and went dead and all efforts failed to bring them back. No. 2 Collins was drilled to the southeast of the others and topped the sand a little higher, indicating it was more on the structure. Rock pressure in the other tests was only 930.

Starr County

A. T. Woods who took over No. 1 Kelsey on Block 75 of Starr County north of Rio Grande City from W. E. Rutledge had a collapsed casing and was unable to test at 1,111 feet last week. The small casing was pulled and the hole reamed out to 10½-inch and casing of large size will be reset so the hole can be carried deeper if necessary. There is a good oil showing. It is wildcat.

Travis County

Fields and others' (Garfield Oil Co. No. 2 Washington in Travis County southeast of Austin has a little oil showing the Austin chalk at 1,230 feet and is making a test. The same operators' No. 1 Washington has been temporarily abandoned.

COASTAL PRODUCTION GREATER IN JANUARY

HOUSTON, Tex., Feb. 20.—The estimated gross production of the Gulf Coast Pools for January is placed at 3,023,877 bbls., an increase of 79,774 bbls. when compared with December.

The following table gives the gross for each pool:

Pool—	Dy. Av.	Gross Bbls.
Boling	3,860	119,660
Batson	1,380	52,680
Blue Ridge	709	21,889
Barber Hill	109	3,379
Big Creek	1,119	34,689
Dayton	82	2,542
Damon Mound	1,021	31,651
Edgerly (La.)	412	12,772
Goose Creek	9,187	274,797
Humble	4,547	130,957
Hull	16,175	501,425
High Island	57	1,767
Jennings (La.)	1,126	35,216
Lockport	3,855	119,505
Markham	75	2,325
Orange	16,043	487,333
Pierce Junction	1,468	45,508
Piedras Pintas	1,388	53,028
Spindletop	3,372	104,532
Saratoga	1,610	50,910
Sour Lake	4,465	138,415
South Liberty	8,621	266,251
Vinton (La.)	6,859	212,629
Welsh-Anse La Bute (La.)	80	2,480
West Columbia	9,975	309,415
*Miscellaneous	262	8,122
Total for January	97,867	3,023,877
Total December	97,480	2,944,103
Increase	387	79,774

*Includes Nacogdoches, Kierberg County, Washington County and places in South Louisiana.

Gross production in the Southwest fields declined 43,369 bbls. during January as compared with December. The total for the seven districts listed under the head of Southwest Fields is 1,233,397 bbls.

Field—	Dy. Av.	Gross Prod.
Luling	21,060	652,860
Laredo	3,443	106,732
Somerset	2,297	71,207
Calliham	246	7,626
Rockdale-Minerva	994	30,814
Jim Hogg County	3,217	99,727
Lockhart	8,530	264,430
Total for January	39,787	1,233,397
Total for Dec., 1925	41,196	1,276,766
Decrease	1,409	43,369

Have You Investigated the MASTER MIXER HEAD ?

Refiners will find it decidedly worth while. We know several of them on the Pacific Coast who are saving from seven to ten thousand dollars a year, because their gasoline treating costs have been reduced from twenty to eighty per cent.

We sell the MASTER MIXER HEAD with a positive guarantee of performance—it is an appliance that may be utilized economically and efficiently in many operations and methods. If you have not investigated the merits of the MASTER MIXER HEAD do so today.

We should like very much to give you detailed information—a card from you will bring it by return mail—WRITE TODAY.

Petroleum Appliance Company

1419 West 8th St. Los Angeles

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

NEW OIL DEVELOPMENT in Texas County, Oklahoma, five wells now drilling, more will be soon, wildcats; send for price lists of leases and royalties. Send 25 cents for map, showing blocks, wells, checkerboarding; big excitement.

GUYMON LAND & LOAN CO.
Guymon, Okla.

DRILLING BLOCKS on the Marathon Fold West Texas; mapped by the geological department of the University of Texas. 10,000 acres for a well; structures approved by high class geologists.
J. H. McCRACKEN
209 Chenault Bldg. Wichita Falls, Tex.

170,000-ACRE BLOCK potential oil and cotton land. Fee $5.00 per acre. South Artesia, New Mex. region, across the line in Texas. U. S. Geological Survey reports Lower Permian Exposure, shallow Pennsylvanian. Dome structure. Texas Bureau Economic Geology reports 1,000 feet oil shales underlying, two horizons 1,800 and 3,400 feet. For sale due to age of owner. P. O. Box 625, Dallas, Tex.

LIBERTY COUNTY, Texas; 75 acres for lease in southwest part of Hull Field, part of which is one-third of mile from production. Will only lease to a company amply able to drill 4,000 feet.
GERALD H. HUGHES
Box 27 South Orange, N. J.

800 ACRES solid block, Woods County, Oklahoma. Fully surveyed by nationally known geologist. Rentals paid to 1927. Direct trend of new Kingman County, Kansas bear cat. Want a well. Showings in shallow wells all sides near by.
J. P. THURMAN, OWNER
Wichita, Kans.

200 FEET offset to E. J. Miley in San Juan, New Mexico field. Other close-in small blocks, large tract for drilling proposition. Wire or write Box 3, Farmington, N. Mex.

FOR DRILLING contracts, some three to seven-acre tracts of proven acreage in the Davenport Field. For particulars, address Box 306, Davenport, Okla.

FOR SALE—Panhandle oil leases and royalties. Texas Co. now drilling this acreage. E. Cooper, Amarillo Hotel, Amarillo, Tex.

10,000 ACRES leases Calhoun County, Miss., for well. No rent one year, 25 cents acre after. Good geology. Mawk & Co., 282 South Front, Memphis, Tenn.

WE SPECIALIZE in oil leases in Culberson County, Texas. Have desirable acreage in the Permian formation on structure.
H. O. THRALLS
Tri-State Leasing Co.
210 Two Republics Bldg., El Paso, Tex.

DEEP TEST WELL NOW DRILLING IN NORTH FLORIDA

T. F. Bray and associates from Arkansas are now drilling a deep test well for oil and gas located on the Monticello Dome in Jefferson County, Florida. Send for structural and drainage map; also geological report.

Geology by Dr. S. T. Wisby of Little Rock, Ark. We desire to hear from all of those who are interested in purchasing leases and royalties around this well.
T. F. BRAY, TRUSTEE
Box 127 Monticello, Fla.

NEW MEXICO — 26,000 acres San Juan and Rio Arriba Counties, Government perits. Want drilling in contracts with reliable companies. Percentage basis. Good terms. Shallow drilling. Oil 66 Baume, 84 per cent gasoline. Proven structure. Four sands. Approved by high-class geologists. Write us for particulars. International Development Co., 1006 Patterson Bldg., Denver, Colo.

FOR SALE—Oil leases and royalties. Write us. Kevin-Sunburst Holding Corp., Box 348, Shelby, Mont.

FOR SALE—Desirable oil leases in established Kentucky Field, shallow drilling, good market. Prices reasonable; references. Write F. J. G., Box 402, Glasgow, Ky.

LEASES—PRODUCTION

LEASE SALESMEN-BROKERS

Sell where the play is big and the publicity unlimited. The Marathon Fold in West Texas is now the center of tremendous development by major oil companies. I can supply you with choice leases in Reagan, Crockett, Val Verde, Upton, Irion, Loving, Winkler, Ward, Reeves and Pecos Counties, large or small blocks adjoining big companies. Write for prices and maps stating what county you are interested in.
B. D. BUCKLEY
5th Floor Central National Bank Bldg.
St. Louis, Mo.
Reference: Page Bank, St. Louis

PRODUCING PROPERTIES FOR SALE

12 wells, 260 acres, 3 powers, 600 feet to sand, several offsets, 29 gravity.
39 wells, 440 acres, 4 powers, 325 feet to sand, 29 to 30 gravity.
7 wells, 80 acres, 325 feet to sand, several offsets, good powers.
7 wells, 120 acres, 625 feet to sand, many offsets, can add 320 acres to this.

Above properties connected to Prairie line, pumped regularly and are good air propositions. Will sell them for just a little more than junk value.
F. W. BLACK
Paola, Kans.

FOR SALE — About 50 bbls. settled production in old field 6 miles southwest of Burkburnett, Texas. About 25 wells, newest one 10 years old. Also about 20 wells with five bbls. total, near Nowata, Okla. Address B. O. Mahaffey, 704 Shell Bldg., St. Louis, Mo.

WORLD'S GREATEST OIL BOOM
Northwestern New Mexico
Scene of Action

Greatest oil companies in the world are acquiring acreage, and unprecedented drilling is outlined for the early spring.

Have you gotten your land in this wonderful section? If not, get in touch with us at once. Don't wait, but act at once.

We deal in State land and Government permits.
HARTMAN & COMPANY
Suite 222, Patterson Bldg., Denver, Colo.

SOUTHEAST NEW MEXICO

Can furnish practically proven leases in Artesia Field, Eddy County. Also other tracts in Eddy, Chaves and Lea Counties. Particulars on request.
H. T. ORCUTT
816 Colcord Bldg., Oklahoma City, Okla.

FOR SALE — Leases, production and partly developed leases. On account of shallow drilling, low cost of equipping, small operating cost, high gravity oil and long life production, Kentucky offers the best opportunity for the small investor. We have for sale producing properties with 2 to 100 bbls. daily production and large undeveloped acreage with proven locations to drill. Address W. P. Harley, Bowling Green, Ky.

PRODUCTION—243 acres in Gibson County, 6 miles east of Princeton, Ind., on improved state highway. Two leases, no rentals. Leased on one-eighth royalty, six wells on pump, 1,420 feet deep. Two years old, producing about 25 bbls. per day. Wells make some water. Oil sells $2.12 per barrel. Thousand-barrel storage tanks connected with Illinois Pipe Line. 25-horsepower Fairbanks-Morse crude oil engine, Mascot power, boiler for steaming oil. One string of 10-inch and 8-inch drilling casing. All equipment in best of condition. Drilling well cost $2 per foot on contract. Six proven locations on lease with possibly more. Will sell everything for $1,500 per barrel on a 10-day test. If you want a first-class property and are willing to pay the price come look this over. This is about all the information I have that I can give you, and if you mean business verify this by personal inspection. H. A. Mann, 314 Parrett St., Evansville, Indiana.

HAVE SEVERAL pieces of flush and settled production for sale in Oklahoma and Wichita Falls districts. Prices reasonable and terms can be arranged if necessary. P. O. Box 1144, Dallas, Tex.

LEASES—PRODUCTION

OIL AND GAS LEASES
Marathon Fold—West Texas

30,000 acres Crockett County, large and small blocks; adjoining big companies; scattered wildcat. Also close-in adjoining World well block.

20,000 acres 10-year leases; low rentals; Terrell County, getting good play. Watch this county! Prices right.

Upton County. Scattered tracts.

60,000 acres one block, southeast Pecos County, on geological formation. Most attractive as to desirability, price and terms.

5,000 acres in Irion County. Ten-year lease; watch the new work here.

7,000 acres Loving County. Ten-year lease; 10-cent rental. Right in line.

Write for prices and maps. Will allow time for geological inspection.
C. W. WEBSTER
W. T. Waggoner Bldg. Ft. Worth, Tex.
Reference: Mercantile Agencies

DRILLING BLOCKS and production in western Kentucky. R. E. Cope, Box 489, Bowling Green, Ky.

FOR SALE or lease, 80 acres, tested on all sides. Bartlesville sand. Other acreage. John McQuiston, Independence, Kan.

WILL LEASE 77 acres nothwestern Guernsey County, Ohio. Only available acreage, 3 miles production, must drill within 4 months. Write J. G. Sager, 705 North High St., Columbus, Ohio.

FOR SALE—Leases in the Panhandle oil fields. W. R. McDaniel, 2105 Sixth Ave., Ft. Worth, Texas.

HAVE BUYERS for flush or settled production in Oklahoma and North Texas. Vern R. Hartman, P. O. Box 442, Dallas, Tex.

WEST TEXAS Marathon Fold oil leases. Personal investments since 1919. Write for data and maps. Paul Konz, P. O. Box 291, Fort Worth, Tex.

WOULD like to hear from parties wishing to invest in Oklahoma. Wildcat leases and royalties. W. H. Adams & Co., 203 Clinton B'dg., Tulsa, Okla.

FOR SALE—REFINERIES

REFINERY — Located Alexandria, La., connecting six railroads. Built of new materials; potential crude supply unlimited; new Urania Field only 40 miles; 11-cent rate on crude from El Dorado-Smackover. Entire output easily marketed nearby. Plant capacity 600 bbls. Improved, simple cracking process makes lub stock instead coke residue. Very attractive proposition to responsible parties. Address P. O. Box 1942, El Dorado, Ark.

REFINERY FOR SALE AT A BARGAIN

All or part of a 500-bbl.-a-day plant. One 150-bbl., one 350-bbl. agitator, one 350-bbl. still, one Ingersoll-Rand air compressor class FRI steam 7x6 air 8x6, one 6'x10'x24' condenser box, four 100-gal. blow cases, one 6,000-gal. horizontal acid tank, one 5-bbl., one 30-bbl. mixing tank, one 1,200-bbl. steel riveted, six 320-bbl. steel riveted, three 500-bbl. bolted, ten 250-bbl. steel bolted tanks, two 100 h.p. Nagle stationary boilers. All sizes in pipe and fittings, 4", 3", 2" pipe line and some producing properties. One Cyclone tractor gasoline drilling machine.
THE TRACY SUPPLY CO.
Bowling Green, Ky.

ROYALTIES—PRODUCTION

WHAT HAVE YOU to offer in producing royalties that can be bought right. P. O. Box 1362, Tulsa, Okla.

FOR SALE—Royalty surrounding Wilcox test to be drilled on Tonkawa-Billings line of folding. Address, Box 1483, Tonkawa, Okla.

F. P. BOWEN
Tonkawa, Oklahoma
Dealer in producing and non-producing royalties, settled or flush production.

WE BUY AND SELL

Producing royalties and royalties on drilling structures. Write us your requirements. Edwin F. Hyland & Co., 923 Kennedy Bldg., Tulsa, Okla.

ROYALTIES—PRODUCTION

PRODUCING
OIL ROYALTIES

Kansas, Oklahoma, Texas, Louisiana and Arkansas

BOUGHT and SOLD

Inquiries Invited

J. G. REAVES & CO.
Royalty Dealers Exclusively
St. Anthony Hotel
San Antonio, Texas

WANTED ROYALTIES give full particulars and price. Box B-176, The Oil and Gas Journal, Tulsa, Okla.

J. F. MARION COMPANY

Magnolia Building
Dallas, Texas
Buys and Sells
Texas Royalties
"Ask Us First"

KAY COUNTY ROYALTY CO.
Ricks Building
Tonkawa, Oklahoma
Dealers in northern
Oklahoma royalties.
Write us regarding your wants.

FOR SALE—REFINERIES

THOUSAND-BBL. REFINERY with big tankage complete, or will dismantle. Address W. G. Endicott, Box 907, Ardmore, Okla.

EQUIPMENT WANTED

WE ARE at all times in the market for all sizes line pipe and casing. See us before you sell, and make money.
IMPERIAL PIPE & THREADING CO.
P. O. Box 1231 Wichita Falls, Tex.

WANTED DRILLING RIG

Gasolnie rotary portable drilling rig capable of drilling 1,000 or 1,500 feet. Box 1178, Shreveport, La.

FOR SALE—EQUIPMENT

SECOND-HAND 11½x12 Ajax Steam Drilling Engines in first-class condition; $100 each. Texas Supply Co., P. O. Box 1777, Houston, Tex.

FOR SALE—No. 4 "Clipper" steam traction drilling rig and tools, in excellent condition, at a bargain. C. W. Ringo, R. R. 2, Brazil, Ind.

ADVERTISING RATES

	1 Time	2 Times	3 Times	1 Mo.
3 lines	1.05	1.80	2.55	3.30
4 lines	1.40	2.40	3.40	4.40
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6 lines	2.10	3.60	5.10	6.60
7 lines	2.45	4.20	5.95	7.70
8 lines	2.80	4.80	6.80	8.80
9 lines	3.15	5.40	7.65	9.90
10 lines	3.50	6.00	8.50	11.00

(Six words usually make a line.)
Compute white space at the above rates
Mail your advertisement to
THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

FOR SALE—EQUIPMENT

FOR SALE
1—12x6¾x12 Acme Mud Pump.
1—12x6¾x12 Ideal Mud Pump.
Box B-175, The Oil and Gas Journal, Tulsa Okla.

FOR SALE
At a Bargain Price

All or part of 20,000 feet, 16-inch used pipe, ¼-inch wall, long lengths, plain ends, very good condition. Wire for price if interested.

COLUMBIA STEEL & TUBE CORP.
Woolworth Bldg. New York, N. Y.

FILTER EQUIPMENT FOR SALE
All or part of complete filter equipment consisting of five 3-ton and six 2-ton capacity filters. Mounted on separate steel frame. Five steel earth cars, two steel charging cars on track. Also one new Century earth burner. All in good condition, very low price. Address, The Superoil Company, Toledo, Ohio.

JARECKI pipe machine in A-1 condition. Cuts from 2½-inch to 12½-inch. We have 50 sets of dies to go with machine. Will gladly demonstrate.
IMPERIAL PIPE & THREADING CO.
P. O. Box 1231 Wichita Falls, Tex.

CRAGO CUT GEARS
Worthy of your confidence. General machine work. 1416 Walnut, Kansas City, Mo. Phone Harrison 7660.

OIL DRILLER having complete rotary deep well rig, for 8-inch self-sharpening, unbreakable bit, for hard and soft rock. G. Griesche, 2024 Durant Ave., Berkeley, Cal.

FOR SALE
One Fairbanks-Morse, 2-cylinder, 100 horse power, Type Y special electric direct connected oil engine, complete, in excellent operating condition.
FRANTZ MFG. CO.
Sterling, Ill.

CASING AND LINE PIPE
For Sale
Let us figure with you.
ELLIOTT MACHINE & SUPPLY CO.
Depew, Okla.

POSITION WANTED

PRODUCTION SUPERINTENDENT
Man, steady and reliable, with 20 years' experience in producing oil in Ohio, Oklahoma and Kansas, desires job with oil company who appreciates getting their production in tanks, with ''ting costs kept at a minimum. Can handle both drilling wells and settled production. References if desired. Box B-156, The Oil and Gas Journal, Tulsa, Okla.

WANTED to handle line of specialties for reliable supply company in New Mexico, Wyoming, Colorado and Montana by man who has had several years' experience and well acquainted with field superintendents and purchasing agents in these States. Will furnish car. Salary and commission or commission only. A-1 references. Box B-170, The Oil and Gas Journal, Tulsa, Okla.

TO LEASE or to act as representative for oil company or individual. Seven years oil field experience, three and one-half in a position of trust, leasing, contracting for drilling, equipping, operating and buying and selling small properties. Early oil country experience under father, one of the pioneer producers. Moderate salary to start or expenses with royalty interest. Box B-153, The Oil and Gas Journal, 30 Church St., New York, N. Y.

EXPERIENCED OIL MAN wants job as production man or lease man; over 15 years' experience; can give good references. Address Box 238, Gorman, Texas.

POSITION WANTED

WANTED—Position as refinery superintendent; 15 years' experience construction and operating of refineries in North Texas and Oklahoma. A-1 references. Box B-154, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

AMERICAN ENGINEERS Service, Pittsburgh, Pa. Require for Eastern-Western-Southern employment proposals; construction, designing engineers, draftsmen, transitmen, power engineers, chemists. Mechanical-structural draftsmen for every purpose, premium salaries offered detail draftsmen.

WANTED—Pipe line field superintendent; one thoroughly versed in all phases of oil pipe line work. State age, experience, references and salary wanted first letter. No booze fighters. Box B-160, The Oil and Gas Journal, Tulsa, Okla.

EXECUTIVE, ENGINEERS, $3,000-$25,000, find our individual, confidential service effective in making new connections. Personally conducted by Mr. Jacob Penn, the eminent employment authority, known to leading business men throughout America. Not employment agency. Jacob Penn, Incorporated. 305 Broadway, New York City, N. Y.

ADDRESSES WANTED

ANYONE knowing the whereabouts of my son, Charlie Hartung will confer a very great favor by notifying Ed Hartung, 207 Pine St., Carrollton, Mo.

WANTED

DRILL — Owner wants proposition. Shallow proven field. O. Jonnum, Nevada, Mo.

WANTED—Shallow production, send maps; give full particulars. No brokers. Box B-171, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Drilling contract, deep or shallow. What have you? E. V. Hansford, Texas Hotel, Fort Worth, Tex.

WANTED—Large production and royalties from owners. Address Box B-174, The Oil and Gas Journal, Tulsa, Okla.

OIL LAND to develop in south California. D. W. Ward, Fulton, Illinois.

WANTED—Complete planetable. Box 355, Columbus, Miss.

LEASES WANTED—In Township 21 south, Range 33 east, Lea County, New Mexico, only. Near Covert well. Submit legal description and best cash price. H. & H. Lease Co., Box 851, Albuquerque, N. Mex.

WANT producing royalties and settled production Oklahoma. Give full particulars first letter. Also consider drilling blocks good geology. No brokers. Write P. O. Box 1382, Oklahoma City, Okla.

WANTED blocks and leases on good geology in any part of Texas. Mail maps and geology. Box 539, Tulsa, Okla.

WANTED to buy producing royalties in any field. E. R. Sitton, 223 Boyle Bldg., Little Rock, Ark.

WANTED—Block of acreage supported by good geology to drill for interest. Prefer Payne, Pawnee or Creek County. Also want 5 to 25 bbls. settled production. Give full details in first letter. F. A. Best, 206 Robinson Bldg., Tulsa, Okla.

WANTED—Producing royalties Oklahoma and Kansas. Give full details. P. O. Box 502, Independence, Kans.

WANTED DRILLING PROPOSITIONS
Will drill test well on well located acreage with good geology. Submit with full particulars to Steiner Oil Co., 347 Harvey Snider Bldg., Wichita Falls, Tex.

FOR SALE—MAPS

OIL MAPS—New Allendale, Illinois and Princeton, Indiana oil fields, scale 2 inches to mile. Cloth $7.50; paper, $5. Claude E. Noble, Box 237, Princeton, Ind.

BUSINESS OPPORTUNITY

PROMINENT, recognized, petroleum chemist will sell for cash or cash and royalty basis formula for penetrating oil developed by himself. Big profits assured. Sample on request. Inquire about other formulas. Box B-172, The Oil and Gas Journal, Tulsa, Okla.

BUY ROYALTIES on drilling structures. Quick play for profit on small investment. Get on our mailing list. For particulars write Hyland & Co., Kennedy Bldg., Tulsa, Okla.

ANYONE having acreage, I have money and tools to drill it, particularly offset or close in; on fair terms. Box B-173, The Oil and Gas Journal, Tulsa, Okla.

40,000 ACRES in western Kansas on good structure, will give liberal amount for a well. J. R. Shipley, 421 W. Fourteenth St., Wichita, Kans.

HAVE SEVERAL thousand acres leased on approved structures. Will give nearly all for test well. Write John Hakanson, Oakland, Ore.

CAPITAL WANTED
Have 320 acres, 12 wells in 460-foot sand, 20 offset locations, two deeper sands on adjoining leases, 31-32 gravity, Prairie connections. Will incorporate, and to party who will take up enough stock to drill up property and to put in air plant will give a good deal.
F. W. BLACK
Paola, Kans.

GARNETT, KANS. — Box 104, 160-acre lease free to party drilling well in shallow field between Centerville and Bush City, fields, Kansas.

BROKERS—SALESMEN
A sound seasoned royalty company paying monthly cash dividends offers hustlers an opportunity for big money. Company going on six years old and has paid over 115 per cent in cash dividends. Splendid cooperation, many repeats. For particulars write E. F. Hyland, 923 Kennedy Bldg., Tulsa, Okla.

CASINGHEAD GASOLINE by-product of interest to owner of plant (over 1,000 gallons per day) located in Kentucky or Louisiana. Box B-163, The Oil and Gas Journal, Tulsa, Okla.

AN INDIVIDUAL with $500 or more may invest and become affiliated with practical men in new oil company, having very valuable foundation and assets; investigate; it will pay. Call or write 217 Central National Bank Bldg., Tulsa, Okla.

NAMES; addressing; cuts. Art photos four for $1.00. Ben Meyer, 35 West 31st St., New York, N. Y.

WILL EXCHANGE good Kansas City, Mo., revenue property worth $50,000 for good shallow production or royalty of equal value. J. O. Monnig, Palestine, Tex.

LATEST OIL AND MINING NEWS
Free oil lease club certificates with your subscription. Sample copies and details free. Mining and Financial Record, 36th publication year. 1831 Champa St., Denver, Colo.

WILL GIVE 15,000 acres for a well; Arkansas territory; gas showing; geological report. Address G. Lucas, 617 Edwards St., Shreveport, La.

PRODUCTION WANTED
Must be worth $250,000 or more. I will consider to give my retail business, located in large city, worth over $250,000 in exchange. My business netted last year over $50,000. Box B-152, The Oil and Gas Journal, Tulsa, Okla.

ARKANSAS WELL LOG COMPANY
214 P. O. Bldg., El Dorado, Ark.

FAR EAST Purchasing Service. Will do your buying of anything desired in any line; native art, batik work, brass antiques, embroideries, laces, etc. Inquiries answered, references furnished. Address, Les Modes, 213 Orchard Road, Singapore, Straits Settlements.

BUSINESS OPPORTUNITY

ARE YOU REPRESENTED IN NEW YORK
Experienced selling agent (drilling, refining, marketing supplies) offers you worthwhile representation. Tools, specialties, chemicals, etc., for domestic and export trade. Commission basis only. Sales, 1508 St. James Building, New York, N. Y.

RAISE CAPITAL
Through the sale of securities in your corporation. Twenty-five years' experience behind plan.
NORTHCLIFFE CORPORATION
25 West 43rd St., New York, N. Y.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 35 E. Tenth, Oklahoma City, Okla.

IF PRODUCTIONS from your oil wells have become too small to yield expected profits remember that you have recovered only about 30 per cent and that 70 per cent of the oil is still in your property unrecoverable by pumping. You can recover this oil by installing the "Lund" oil mining method—a system in successful operation in Europe and soon will be in this country. Recovery cost less than oil well drilling, quantity considered. Preliminary information free for the asking but enclose $5 to help pay for drawing showing surface plant required and underground workings and equipment for 5,000-bbl. daily production. Conditions being favorable your property may be made to yield big. P. H. Lund, Petroleum Engineer and Geologist, 734 Palace Bldg., Minneapolis, Minnesota.

DOGS—POULTRY

POLICE PUPPIES 6 months, husky farm raised; good pedigree, line bred, best blood lines; prices reasonable. E. L. Hudson, R. R. No. 5, Independence, Mo.

PEAFOWL pheasants, bantams, pigeons, wild geese, ducks, breeding stock, hatching eggs, free circular. John Hass, Bettendorf, Ia.

BEAUTIFUL registered bull pups $15. Bulldogs. 501 Rockwood, Dallas, Tex.

PATENTS

PATENT-SENSE — Valuable book (free) for inventors seeking largest deserved profits. References include prominent oil men. Write Lacey & Lacey, 718 F. St., Washington, D. C. Established 1869.

LETTERHEADS—PRINTING

BETTER PRINTING for less money. Broadsides, folders, booklets, circulars, envelopes, letterheads, office forms, etc., at low prices. Samples free, correspondence invited. Ernest Fantus Co., 525 S. Dearborn St., Chicago, Ill.

CONSUMERS' LEDGERS
We are prepared to furnish from stock standard forms of gas meter Consumers' Ledgers. Sample forms and quotations on request. First class material and workmanship.
DERRICK PUBLISHING CO.
Oil City, Pa.

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

PATENT ATTORNEYS

PATENTS—In connection with reliable Washington patent attorneys. I am specializing in handling patent cases. If you are thinking of applying for patent, call and talk it over with me. E. B. Howard, Oscar R. Howard Bldg., Tulsa, Okla. Phone 3-7141.

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone send for blank form
Evidence of Conception
Bulletin, "How to Establish Your Rights," and complete information free.
LANCASTER AND ALLWINE
240 Ouray Bldg. Washington, D. C.

No One-Armed Paper Hanger Was Ever Busier Than an Oil Jobber

That may seem like a lot to claim once you imagine all the difficulties a one-armed paperhanger might run into. In fact, unless you have actually seen one in action, you might be inclined to believe that it could not be done.

However, there are many things that seem incredible, yet are true. For example, it is quite probable that if the man who runs a small filling station up in the north of Michigan was to tell the next man who drives up for supplies that the gasoline came from Pennsylvania—the motor oil from Oklahoma—the grease from Indiana—the motorist would say flatly, "It can't be done."

Yet it is being done—thanks to the oil jobber.

Refineries in all parts of the country depend upon the oil jobber to be the immediate buyers of their tremendous production. A jobber in Chicago buys from refineries all over the country and stores the various kinds and grades of oils in his own tanks from which he is always ready to fill assorted orders from retailers.

Dealers depend upon the oil jobbers to act as their warehouses. It is quite easy to picture the delay and difficulty the Michigan retailer would encounter if he had to order from the Pennsylvania, Oklahoma and Indiana refineries along with many others. Instead he simply sends his order in to an oil jobber who fills it immediately and automobile owners go on their way rejoicing. Such service insures the profits and business of both the refineries and retailers. It is the service given by the Acme Petroleum Company—the largest oil marketing concern in the country. Try that service today.

(This is the forty-eighth of a series of informatory advertisements on distribution problems with which the oil industry has to contend.)

ACME

Petroleum Company

Executive Offices: 624 S. Michigan Ave., Chicago

KANSAS CITY, MO. Land Bank Bldg.

DALLAS, TEXAS Magnolia Bldg.

OIL STORAGE PLANTS

Over 7,000,000 Gallons Storage

West Tulsa, Okla. Riverdale, Ill.

(Chicago Switching District)

CHICAGO HOPEFUL FOR MARCH; SITUATION BETTER THAN IT LOOKS

By J. B. Waldo

CHICAGO, Feb. 20.—The week just closed is said by many dealers to have been the dullest on record in the Chicago petroleum industry. There was little spot business and the distributors are quite generally holding up shipments not only of gasoline but other products for which they have contracted in advance, even lubricating oils. The situation with the sales offices has been made the more disagreeable by the insistence of some refinery managers that there must be an outlet for their product and it must be found. The cause of the small demand is not overproduction, nor large stocks in hand or in transit, but just small consumption due to the weather.

The situation as to gasoline has been intensified because several if not a considerable number of marketers were able to purchase Navy grade gasoline during the latter part of January and the very first of February at prices substantially below the market price. January had been disappointing, there were some accumulations of gasoline and the desire to move these, perhaps the necessity to secure sales induced some refiners to sell at 9½ and 9⅝ cents. Two of these refiners were large producers with limited sales facilities. The buyers of this gasoline would have liked to sell at 10½ cents or at any good price but when the demand failed to develop they simply sold at what they could get and the result has been jobbers have had a declining market during the month. This is of itself, no inducement to buy although it might have been a good time to take in a few cars if one had the room and could afford to carry it for a time. It is just as well that few did this for if they had they would have been supplied and when the refinery wanted to market gasoline again these jobbers would be in no position to purchase.

Real Strength in Situation

On the other hand there are quite a number of refiners who have held for 10½ to 11 cents, not so many of the latter. The fact there are any willing to stand aside and let the other fellow have the business, shows there is more confidence in future values, more willingness to wait for the demand, more real strength to the situation than the fact that gasoline was purchasable by jobbers at 10 cents for the U. S. Motors grade during the week in increasing quantities might be thought to indicate. It may be the industry is not giving full credit to some facts and one is that the early month of 1925 were phenomenal in their increase of sales over 1924. The time was good, in 1924 it was very bad. Right now we are looking back on a period last year when the business was above the average for the time of year.

There is a good deal of interest shown in the West Coast situation as regards gasoline. The Bureau of Mines figures for the first of the year showed a very large accumulation of gasoline on the West Coast and during January the movement from the West Coast eastward through the Canal was large. Now a good part may have gone to Europe but if so there will be the less demand on the Mid-Continent refiners for export, but this is comparatively unimportant compared with the possibility of great deliveries of California gasoline to the North Atlantic ports. According to advices received here this week, the California refiners have higher values in mind than a year ago and are now asking as high as 12 and 12½ cents. Adding the cost of transportation, the California gasoline laid down at North Atlantic ports will be at least 14 cents. There is some possibility of earlier contracts having been made for deliveries at less prices than the present asking prices but if they hold to their present views there will be much less competition from West Coast gasoline in the East, and it may be the field where the Mid-Continent product will find its 1926 market will be considerably larger than it was a year ago.

Wide Range

The demand here has been largely for the U. S. Motors grade and the market has ruled at a wide range, sales being reported at prices ranging from 10 to 10½ cents. The latter prices have been made by the larger refiners to regular customers who could not be enticed away from a satisfactory connection with a regular source of supply for the small saving on the few cars wanted. The bulk of business has been done at 10¼ cents and some sales have been made at 10 cents more as the week drew towards its end. In a few exceptional cases, large amounts, usually for immediate delivery, buyers claim they shaded 10 cents. The bulk of the business has been small and even contract customers are holding back shipping instructions and asking that deliveries scheduled be held back. There has been some inquiry for the higher tests but here there have been supplies available and this is particularly true of the 64-66 390 end point with 64-66 375 end point less freely offered and the 60-62 400 gravity scarce and holding its price better than any other grade. The reason seems to be there in some export buying of the latter and exporters are offering 11¾ and, according to one refiner, they will pay 11⅞ cents which is not must less than the Chicago market. There has been little evidence of any export demand here and the concerns that usually have the export orders state they are out of the market but they do not advertise the fact that they want a few cars even when they do.

The outlook for March is, according to many, much more favorable than for February. March is the month when under usual conditions there is some increase in the actual consumption. From the middle of March there is more gasoline consumed and this year there will be a large demand on the refiners. The exporters should also be more important in the situation. Reports have been sent from Tulsa of many inquiries for gasoline for export and one was that The Texas Co. stood ready to take 1,000 cars at 10 cents but it must pass the doctor and corrosion test. Many of these reports seemed designed to help hold the market and were so regarded here but may have had some foundation.

Kerosene in Demand

When it comes to kerosene there is a different story. There has been a steady demand and some of the largest refiners have been buying to help their own production. Many sellers are still at sea as to where all the kerosene is going. Every theory they have put out regarding the filling of tanks for the spring tractor demand and the like seem to resolve into the fact that there is really a larger consumption of kerosene than has been realized. The output is less or has been and stocks the country over are greatly reduced so that kerosene is of that much greater value. Some refiners who saw what was coming and started to run a greater quantity of kerosene several weeks ago state they are selling all they can make and that their good customers include some of the neighboring refineries who did not adjust themselves as quickly to the situation. The result has been a strong market and some appreciation of prices, some few asking 7 cents for the 41-43 gravity and others believing they will be able to get that price in a few days. The 42-44 gravity is seldom called for now. It is scarce and must seem very expensive with 7¼ cents about the average price.

Furnace Oils Steady

Furnace oils have not been very active, yet there is some demand and prices are fairly steady. Two distributors here who have refineries back of them have had to

buy in the open market to meet the needs of their own and their customers' stations. Country distributors are loath to purchase and are giving the preference to gas oil rather than to distillates as they can use the former for a wider range of customers. Some refiners say they have delivered all their distillate and are through for the season unless there is an unexpected demand.

Gas oil has been active and has played a very fair second to kerosene. The supplies do not seem to be adequate to the present demand judging from the case of one large middle state refinery which was forced to buy a considerable quantity of gas oil to deliver on a contract with a utility company and paid 3¾ cents for a dark gas oil. Early in the week marketers reported there was some gas oil available in the Mid-Continent Field at 3⅝ cents but later it was all gone and the best they could do for spot or nearby deliveries was 3¾ cents. The domestic demand has been very good in all sections and in the East higher prices are being asked. There is some industrial demand and distributors report their tank wagon business continues large. The demand from the smaller industries and the domestic service plants such as bakeries, laundries, hotels and the like is good the year round though bulking larger in winter than in summer. The usual price for a fair quality of gas oil is 3⅞ cents with a clear, clean low cold test oil held by many at 4 cents to the trade.

Fuel Oil Situation

There is little change in the fuel oil situation. Buyers continue to hesitate in placing business, waiting for lower prices. Refiners on the other hand state their stocks are in good shape and that there are only a few places where there is a temporary surplus due in some cases to the failure of large consumers to take out their oil as contracted for. If such is the case it must be because the industry is not using the oil, for the long time contracts are quite commonly favorable to the user. There has been a great amount of contract oil delivered this winter and much of it at prices below the spot market so refiners have not realized the apparent profit there was in the prices quoted for spot deliveries.

The market is called soft for the common grades of fuel oil but the higher gravities from 26-28 up are not easy to buy and are firmly held. The standard grade of fuel oil today is more nearly an 18-22 than the old 24-26. In fact few are quoting a 24-26 today and they grade their oils to buyers as 18-22 and 22-26 and for most uses the lower gravity is just as desirable as the higher if it flows freely. Usual quotations are $1.20 for the 18-22 and $1.25 for the 22-26 grade. The Smackover situation is firm. The quality of that oil offered here is greatly less and the prices might go higher were it not for the previous purchases and the difficulty of getting orders for new business.

Lubs Slow

Lubricating oils are moving slowly, in fact refiners are complaining some of the quantity buyers are taking their oil much less rapidly than their contracts demand. Some refiners say there is no excess of the wanted grades of lubricating refinery oils and a little delay in shipping right now does no real harm. The consumption of motor oils promises to be large this summer but right now buying is along the same line as that of gasoline. Contracts for export are slow and the demand is not great now although reports made here state that there are inquiries for assorted cargoes both here and at the Gulf ports possibly for the same cargo or cargoes. Prices have strengthened since the crude advance and are now generally about one-half cent higher.

There has been a change, lubricating engineers state, in that many large plants are getting away from ordering a special oil for a dozen different purposes and find that a lubricant can be had that will answer several supposed needs for different oils. One large plant is stated to be using regularly two grades and at most three when it used to order twenty different kinds of lubricating oils.

Tank wagon prices have not been generally changed over this territory. At a number of points in South Dakota gasoline has been advanced to normal or nearly so. The increases were made by the independent distributors and followed by the Standard Oil Co., with possibly a few minor exceptions. One drastic restoration during the week was in the territory of the Standard Oil Co., (Ky.) where an advance was made of 1 cent over the territory except in Kentucky where there were "a few minor exceptions." These exceptions seem to have covered a good number of the best points in the state and were from 2 cents to as much as 5 cents. In Owensboro the tank wagon and service station prices were increased 5 cents by two advances in one week. The story as told by oil men from that state is that there has been a lot of price cutting. The state proposed to place a tax of 5 cents a gallon on gasoline and the industry thought it wise to get its list adjusted before it was possibly forced to add to the station price by this new tax which has become a law. If the prices were not raised to normal before the tax went into effect there would be great difficulty in increasing them with the tax added to the present retail price.

Q. D. A. Hearing

The gallonage is variously reported. In some sections and by some companies the consumption is stated to be less than a year ago, while others state their business is about the same and still others that it is running a little better. One operator with a string of stations in the Northwest says he has just been lucky for his stations are doing better than a year ago. There was a feeling after the close of the hearings before the Department of Markets in Wisconsin, that that state would bar in some way the Q. D. A., but the announcement that the final hearing at Madison to have been held this week will be adjourned to some date in March puts somewhat different aspect on the situation. The point at issue is very largely the quantity allowance given to large organizations which buy at many points but receive a discount on the total purchases. This seems to be the sore spot and the oil men claim that in effect it obliges the small dealer in some little town doing a small business to cut his price as much as 2 or 2½ cents to a few or lose business which he cannot afford to lose. Some concerns that have adopted the same plan as the larger organizations state that the rebate they must make to their trade cuts a big hole in the 4½ cents marginal contracts. The objection seems to be that the working out of the Q. D. A. contract forces the small dealer to give the same liberal allowance made on sales of large quantities on small sales of a few gallons of gasoline.

EASTERN MARKETERS PLANNING FOR BIG SPRING DEMAND FOR GASOLINE

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, 30 Church St., New York

NEW YORK, Feb. 20.—Following the advance of 1 cent a gallon in the tank wagon price of gasoline by the Standard Oil Co. of New York and Standard Oil Co. of New Jersey, covering most of the Atlantic Seaboard, the refined oil markets were quiet during the past week. During the week the Standard Oil Co. of Kentucky also raised tank wagon gasoline in the southeastern States. The changes by the New York and New Jersey Standard were the first so far this year.

Consumption of gasoline had been affected adversely for about a week by the heavy snows, but a steady rain has removed this impediment to the use of motor vehicles, and the outlook now is for increased consumption. Meanwhile, local marketers are engaged in planning for the spring demand for gasoline by piling up stocks and by running more crude oil. Receipts of crude oil from the Gulf Coast have increased considerably and seem now to be established on a more normal basis. At the same time Atlantic Coast refiners are taking more oil from California and Mexico.

Refiners More Active

The increased movement is regarded as evidence of a revival in refinery activity, and if this revival takes place and crude production does not increase there is expected to be a more substantial withdrawal of crude from field and pipe line storage.

All indications point to a continuous advance in oil prices on the Atlantic Coast, although not of runaway proportions. Many marketers expect that gasoline will sell at least 3 cents a gallon higher by fall, but doubt whether it will go any higher, for economic reasons. The optimism is based largely upon the crude oil outlook.

Kerosene

Kerosene apparently continues its upward trend, some refiners having boosted refinery quotations at Atlantic Seaboard points. It is quite apparent that the strength in kerosene is due at least in part to inroads made in the supply by the increasing use of furnace and Diesel oil, and that continued advances will materially restrict its use both in this country and abroad.

Gas and Fuel Oil

The gas oil market is strong, bids of 6 cents a gallon having been reported, as against recent business at 5½ cents f.o.b. refinery.

Fuel oil is exhibiting a firm tendency, despite reported weakness in the southwest.

Lubricating Oils

The lubricating oil market is quiet, but renewed inquiry from industrial sources is taken as an augur of a turn for the better. The brief is growing on the part of lubricating oil makers and dealers that prices have been out of line and that excessive competition has brought about needless concessions in prices, especially of red and pale oils. Crude oil advances have brought about a change in the attitude of refiners, who are making fewer concessions, while increased industrial operations and sales to the motor vehicle trade caused buyers to become more urgent and also more liberal.

The same situation is believed to apply to the paraffin wax market. Extreme dullness of recent months is being gradually replaced by signs of activity, with indications pointing to higher prices.

The petrolatum market continues dull and prices are in the main unchanged. A somewhat better demand for amber and light amber is reported.

The Export Market

The oil export market at New York was quiet during the past week. The bulk of the movement was to South America and Africa, and consisted of cased gasoline and kerosene, and lubricating oil in barrels. One shipment of over 13,000 bbls. of lubricating oil went to various African ports, including Cape Town.

That prices of gasoline tend higher abroad was indicated by the announcement of a general advance in Holland being equivalent to about 1½ cents a gallon in the United States price. This advance is important as being a possible factor in convincing foreign buyers of oil products of the genuineness of the strength in the American market. Once this has been demonstrated to their satisfaction, considerable foreign purchasing of American oil products is expected to set in.

Petroleum exporters feel that there will be a rush of foreign buying in the spring, and companies having their own marketing facilities are said to be planning to make rather heavy shipments at that time, especially since their stocks are reported rather low.

Case shipments of gasoline and kerosene during the week ended February 17 were fairly heavy. Gasoline exports in cases amounted to 1,943,970 gallons, and kerosene 1,486,740 gallons.

Barrel shipments of lubricating continued especially strong, amounting to 1,669,350 gallons.

Exports of refined wax amounted to 1,628,880 pounds.

Petroleum Exports

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks (figures in gallons unless otherwise noted):

	Week Ended		
Gasoline:	Feb. 17	Feb. 10	Feb. 3
Bulk	.....	.....	7,815,966
Barrels	50,000	.....	59,500
Cases	1,943,970	3,209,240	1,353,750
Kerosene:			
Bulk	.....	.....	2,366,632
Barrels	.....	.....	75,000
Cases	1,486,740	3,827,970	2,237,380
Lubricating oil:			
Bulk	17,500	.....	.....
Barrels	1,669,350	1,124,650	1,939,150
Cases	84,970	300,960	185,680
Lubricating grease:			
Barrels (lbs.)	.....	.....	1,262,250
Paraffin wax:			
Bags (lbs.)	1,628,880	2,671,900	1,018,820
Petroleum coke:			
Bags (lbs.)	.....	629,200	.....
Crude oil:			
Bulk	.....	.....	236,452
Barrels	.....	.....	40,350

The above figures include only exports in lots of 500 bbls., 1,000 cases, or more.

Tanker Charters

The oil tanker charter market continues to show unusual activity. Rates are still advancing. They are actually approaching the record rates which prevailed during the oil boom of 1920. The anxiety to secure tankers undoubtedly reflects expectations of a heavy water movement of petroleum. The scramble for tonnage has applied to almost all routes, including the United States to Europe, Russia to Europe, the American intercoastal trade, from both Gulf and Pacific coasts to the Atlantic Seaboard, and also the trade from Mexico and Venezuela to American Gulf and Atlantic ports.

A new mark for rates on the Mexican trade movement was reported, when the Tanker Torres, a 30,000-bbl. tanker belonging to the Southern Pacific Co., was fixed at 40 cents a barrel from Gulf to north of Hatteras, and at 43 cents, optional, Tampico loading, for February.

Tanker Agwimoon, Gulf to north of

Oil Receipts

Receipts of crude and refined oil at Atlantic Coast ports during the week ended February 17 are estimated at 480,000 bbls. a day, compared with 590,000 bbls. a day during the preceding week.

Receipts from the Gulf Coast averaged 324,000 bbls. daily, against 386,000 bbls. the week ended February 10, a decrease of 62,000 bbls.

Receipts from the Pacific Coast for the week ended February 17 averaged 66,000 bbls., compared with 95,000 bbls. the week before.

Imports averaged 90,000 bbls., a decline of 19,000 bbls. compared with the daily rate of the preceding week. Imports from Mexico averaged 81,000 bbls. daily, and from Venezuela 9,000 bbls. daily, against 109,000 bbls., or the entire amount, from Mexico during the preceding week.

Petroleum Receipts

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports from the Gulf and Pacific Coasts of the United States, and imports, for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week Ended		
	Feb. 17	Feb. 10	Feb. 3
Gulf Coast	324,000	386,000	308,000
Pacific Coast	66,000	95,000	79,000
Imports	90,000	109,000	109,000
Total	480,000	590,000	496,000

Daily Averages by Months				
1926:	Gulf	Pacific	Imports	Total
January	279,000	59,000	96,000	434,000
1925:				
December	298,000	56,000	103,000	457,000
November	259,000	36,000	92,000	387,000
October	249,000	36,000	102,000	387,000
September	306,000	66,000	74,000	446,000
August	291,000	54,000	90,000	435,000
July	391,000	63,000	107,000	561,000
June	379,000	66,000	118,000	563,000
May	312,000	81,000	145,000	538,000
April	353,000	78,000	101,000	532,000
March	273,000	82,000	135,000	490,000
February	262,000	51,000	147,000	460,000

The foregoing estimates are based upon the carrying capacity of incoming oil-laden tankers.

Many Products From Smackover Crude

Output of Lion Refinery Includes Special Naphthas, Distillates and Roofing Material as Well as Large Yield of Gasoline

By C. O. Willson

A skimming plant consisting of ten 1,000-bbl. shell stills, nine of which are operated continuously securing an overhead recovery of 70 per cent from heavy Smackover crude.

A battery of 15 Burton cracking stills which handle the output of the skimming plant.

Six shell stills operated continuously for rerunning pressure distillate. The battery which has a capacity of 5,000 bbls. daily is operated by one man.

Flexibility in operation so that the output can be changed in line with market conditions.

Minimum of waste exemplified in gas recovery system and equipment which recovers engine oil for refinery and field operations from waste crankcase oil of the filling stations.

The foregoing are some of the main features of the El Dorado, Ark., refinery of the Lion Oil Refining Co., the largest and most complete in the State and one of the major refineries of the Mid-Continent Field.

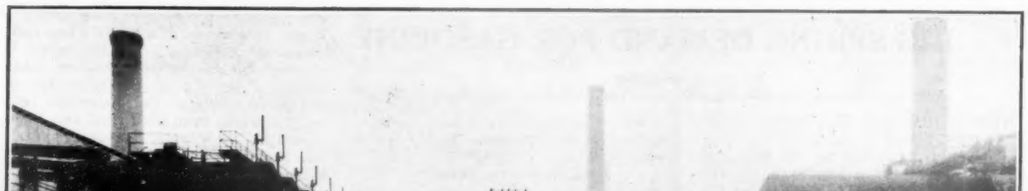


Fig. 1—View of El Dorado, Ark., refinery of the Lion Oil Refining Co., showing battery of ten 1,000-bbl shell stills (left) and 15 Burton cracking stills (right). Power plant in background.

Previous to the building of the Lion refinery, Arkansas refinery operations were confined to small skimming plants, a majority of which failed to show consistent profits and which have since been dismantled. After an investigation covering the market outlet for refined products and the probable future supply of crude in Arkansas the Lion management in 1922 decided to build a refinery of sufficient size with modern equipment so that it would be a permanent contribution to the refining industry.

Developments in the production end in which the Lion company's production department has had a substantial share have more than vindicated the predictions as to a crude supply. At the present time the producing division furnishes the 8,000-bbl. daily production requirements of the refinery.

Due to a changing crude supply and the demand for greater efficiency — the latter an imperative situation with which every refiner is familiar—the manufacturing heads have from time to time made some changes in the plant's equipment and operation. This has been accomplished, however, without changing the main features of the plant as originally installed.

During the four years in which the present plant has been operated practically every grade of crude obtainable in Arkansas has been charged to stills. During the past year the company has had a large production of 18-20 degrees Baume crude commonly known as "Smackover heavy," and this grade is now refined exclusively at the refinery.

Coming from refinery or field storage, the crude first passes through a dehydrating plant recently completed at the refinery. This plant was designed by Sylvester Dayson, general superintendent of the refinery. It consists of a pipe still with a separator of special design in which the objectionable matter is removed from the crude.

At the present time this dehydrator is handling 10,000 bls. of fluid daily. About 20 per cent water and b.s. is removed and the crude leaves the plant with a water and b.s. content of .4 of 1 per cent. Much of the heavy Smackover crude used by Arkansas and Louisiana refineries is dehydrated in the field at a heavy cost. The cost of the new method at the Lion refinery does not exceed $.016 per barrel. Compared with the former method of field treating, the return on the new equipment is 450 per cent. A pipe still, shown in Figure 2, is also used at the refinery for preheating the crude before it passes to the first shell still.

Water and salts, in combination with sulphur, are the principal impurities which plant operators have found give trouble in the distillation and fractionating processes if they are not removed before the crude enters the main plant. The Lion equipment removes practically all of the water and salts, and this fact is responsible in a large measure for the efficiency obtained in the skimming operations.

Shell Stills

Shell stills of 1,000-bbl. capacity are not commonly seen at refineries anywhere. Their widest application goes back to the days when skimming was accomplished by the "batch system" and the larger capacity made possible longer runs between shutdowns.

At the Lion plant, however, the large stills shown in Figure 1 are not considered objectionable because they fit in well with the general scheme of plant operation. In skimming the Smackover crude to secure rerun stock, nine of the stills are generally operated continuously. A liquid level of about 40 per cent of the still capacity is maintained. The 60 per cent space allowed for vapors is a distinct aid in securing the desired separation of light and heavy ends of Smackover crude.

Securing an overhead recovery as high as 75 per cent from heavy crude of asphaltic base with a sulphur content averaging around 2.75 per cent naturally has brought some practical operating problems. Corrosion for a time constituted an important operating problem, especially in the condensing equipment. Getting rid of the extraneous matter in the crude before it entered the shell stills and the use of condensers of special design with brass connections have greatly reduced losses in operation time and equipment due to corrosion. In this connection an interesting feature is the injection of steam into the connecting lines between the shell stills to aid the flow of the heavy residuum from one still to another. The stills are hooked up in such a manner that one or more can be shut down for repair or cleaning without disturbing the continuous operation of the battery.

The exact manner of operating this battery depends on the products wanted by the sales department and this in turn is largely dependent on market conditions. The manufacturing and sales department working together have gradually developed market outlets for special products, including roofing materials, naphthas and engine distillates not commonly refined in the Mid-Continent Field. The production of these products has, of course, made some changes in the operation of the plant.

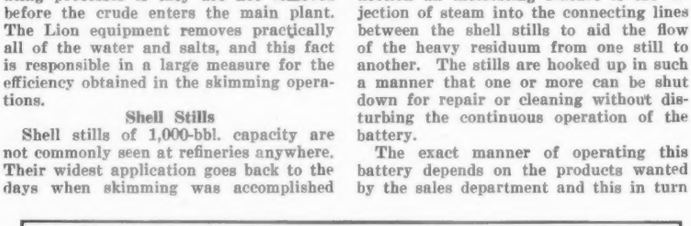


Fig. 2—Rerun battery of six shell stills and pipe stills for crude battery. At extreme right is experimental still and also equipment for reclaiming crankcase oil.

The lighter ends from the topping or skimming plant can be rerun and special naphtha secured. This also gives the base stock used in the refinement of other products. All of the nine cuts from the continuous operation can be blended together as charging stock for the cracking units.

The charging stock for the Burton cracking units is a dark gas oil of from 28 to 30 Baume gravity. This phase of the refinery's operations can be passed with the statement that the industry's pioneer cracking process — not rated as high among most plant operators now as it was in the past—has been operated profitably from the time of its installation four years ago. Low maintenance cost, an important factor in handling Arkansas crudes, constitutes the outstanding feature of the operation.

The cracking units are operated with no recycling, so there is very little coke produced. The bottoms from the stills are mixed with the residuum from the skimming plant operations. This gives a fuel oil which is low in gravity but high in B.t.u. content. Just as the gasoline distributor has had difficulty in convincing the buyer that gravity is not necessarily indicative of motor fuel value, so the seller of fuel oil has been compelled to conduct a campaign of education in regard to low gravity fuels.

The Lion fuel oil usually has a gravity under 10 degrees Baume. It is +5—10 degrees cold test and due to the blending with the bottoms from the cracking stills it flows readily. The bottoms, although high in specific gravity, are low in viscosity. A test at the plant recently showed the following comparison between the Lion fuel oil and a representative 24-26 Mid-Continent grade:

	Smackover	Mid-Continent
Sample	10/12 gr.	24/26 gr.
Specific gravity at 60°F.	.9993	.9063
Gravity A.P.I. @ 60°F.	10.1	24.8
Flash, Pensky-Marten	220°F.	275°F.
Flash, Cleveland open cup	260°F.	295°F.
Fire, Cleveland open cup	305°F.	335°F.
Viscosity, Say. F. @ 122°F.	67 sec.	19 sec.
Solubility in carbon bisulphide	99.75%	99.93%
Sulphur	1.92%	1.72%
B.t.u.s of heat per pound	19,564	19,694
B.t.u.s of heat per gallon	162,812	148,703
Loss (20 gm-5 hr.-325°F.)	10.41%	9.62%

Rerun Battery

The rerun battery, which was recently rebuilt, would probably be the most interesting feature of the plant to many operators. It consists of six shell stills (8 by 30 feet) originally used as a skimming battery for crude. The settings were raised about four feet and other changes made in furnace design which have resulted in substantial reductions in fuel costs.

Bubble towers designed and built at the plant have replaced the baffle type formerly in use. The lines carrying the charge to these bubble towers all connect to the receiving house, where a manifold arrangement makes it possible for the operator to control the amount of liquid allowed to enter each tower. Another manifold arrangement at each tower permits the operator to introduce the liquid at three different levels in the tower. Finally thermostat controls provide a still finer and automatic control of the liquid flow to each tower.

The battery, as previously indicated, can be operated in several different ways,

depending on the requirements of the marketing department. It operates most of the time with pressure distillate from the cracking stills, but also handles rerun stock from the skimming plant. Special naphthas and distillates, as well as finished gasolines for export and domestic markets, are obtained in the operation of the battery.

Method of Operation

A brief description of the operation at the time of the writer's visit will make clearer the flexibility of the battery's operation. Treated pressure distillate of 50 degrees Baume gravity passes through an exchanger of conventional design and then to the first still of the battery. The temperature spread of the battery varies from 275 degrees Fahrenheit at the first still to 500 degrees at the last still.

Pumps for handling the pressure distillate, the bottoms from the last still and the recycling stock for the bubble towers are located beneath the receiving house. All three pumps, each of which has a stand-by unit, are automatically controlled.

The flow of pressure distillate is maintained at whatever rate desired and the residuum pump maintains a uniform liquid level in the last still. The pump for recycling stock maintains a uniform pressure on the lines running to the bubble towers.

The overhead streams from the first four towers are run together in one tank, the resulting product being a gasoline meeting U. S. Motor specifications. The fifth and sixth streams having a gravity of 38.5 degrees and 36.5 degrees Baume are run together in a second run down tank and form the material used as recycling stock for the bubble towers.

By recycling the heaviest ends obtained from the last two stills of the battery all the light ends suitable for gasoline are removed and the maximum recovery of gasoline is assured. Due to this procedure the gravity of the bottoms is 30-31 degrees Baume, with other specifications meeting red engine distillate requirements. At many plants these bottoms are only suitable for blending with fuel oils.

Gasoline Recovery 32 Per Cent

With this method of operating the rerun battery the recovery of U. S. Motor gasoline based on the crude runs to stills is 32 per cent. This yield is obtained when 70 per cent gas oil is secured in the skimming operation, 65 per cent pressure distillate in the cracking operation and 70 per cent U. S. Motor gasoline from the rerun stills. This gasoline yield, when all costs are considered, including the value of the remaining products, compares very favorably with the best results obtained in the refining of heavy Smackover crude.

The reflux from the bubble towers is generally returned to the same still. Through the multiple arrangement, however, it can be returned to any still desired or run to storage as a separate product if desired.

From this description it is apparent that the operations can be changed so that with the same ease any product obtainable from the charging stock can be secured. With all the automatic control features the duties of the operator are largely confined to supervision of these instruments. For that reason only one operator on each shift is required, although the battery often handles in excess of 4,000 bbls. charging stock daily.

Experimental Still

All of the changes which have been made from time to time in the operations of the Lion refinery have been worked out experimentally at the plant's laboratory and miniature still shown in Figure 2. This is a small shell still with other equipment changed from time to time, depending on the tests to be made.

Every effort is made at the plant to eliminate waste and make marketable products out of every fraction of crude run to stills. One of the main difficulties in refining Smackover crude has been to handle certain fractions so as not to have a constant accumulation of material for which there is no demand. At the present time there is no waste material at the Lion plant except the small amount of coke from the cracking stills, which is utilized in making roads around the plant.

The refinery has a gas collecting system which covers every part of the plant. This serves the double purpose of saving the light condensible ends from the plant's operation and at the same time eliminates the objectionable odors which are especially noticeable in handling Smackover crude. The gases are passed on to an absorber, where they come in contact with a specially prepared absorption oil. The non-condensible gases are burned at the plant.

In Figure 2 adjoining the experimental still there is shown another small still used in the reclamation of crank case oils drained from cars at filling stations owned by the Lion company at El Dorado. These oils are first filtered through rags and then distilled. Some spindle oil is recovered with enough engine oil for refinery requirements and also the field work.

PENNSYLVANIA MARKET EXPECTED AN ADVANCE

OIL CITY, Pa., Feb. 20.—Every day during the past week the refiners and jobbers of the Pennsylvania district have been expecting an advance in gasoline tank wagon quotations for Pennsylvania but it has failed to come thus far and this has been a real disappointment for the trade.

Gasoline and naphtha were very stagnant during the week. Prices held but the demand was not good. Kerosene continues to hold strong with a very good demand. There was a scarcity of neutrals during the week and there was a fine demand for this product with better prices. Cylinder stocks were not in good demand. There was little change in the fuel oil market. Wax demand was good with prices unchanged.

ROCKY MOUNTAIN FIELDS

(Continued from Page 48)

in order to assist the Land Department men in obtaining information.

The Texas Pacific Coal & Oil Co. recently took over the controlling interest in the Homestake Exploration Co., a Montana concern, which has been singularly successful in the Kevin-Sunburst Field. The Homestake will lay a pipe line from the Kevin Field to the railroad to handle its production, as the Illinois Pipe Line Co. has been forced by overproduction to prorate runs from this field. The Homestake was reorganized a few weeks ago, and officials of the Texas Pacific are prominent on the new board. J. Robey Penn heads the organization as president, with E. J. Marston of Fort Worth as first vice president; H. W. Knox, also of Fort Worth, is second vice president, and W. H. Hoover of Great Falls, Mont., is third vice president. LaRue Smith has been named counsel and secretary of the company, with T. B. Campbell and Arthur Seibel assistants. Mr. Siebel is also a Fort Worth man. E. B. Coolidge, connected with the Homestake since its organization and president of the Montana branch of the Rocky Mountain Oil and Gas Association, is also on the board of directors, with R. J. Fleckenstein of Fort Worth.

Montana Production

Production figures for the Montana fields, covering the month of December, have been made public. The production of the Kevin-Sunburst Field, in spite of the prorating program, was almost three times that of the Cat Creek Field. The Kevin shipments through the Illinois Pipe Line totaled 271,632 bbls., while the Cat Creek Field shipped 94,929 bbls. Deliveries made by the Illinois Pipe Line Co. to the various refineries were as follows: International Refining Co., 85,334 bbls.; Arronow, 1,455 bbls.; Arro Oil & Refining Co., 17,530; Sunburst Oil & Refining Co., 29,848; Continental Oil Co., 1,466; Alberta Refining Co., 1,941 bbls.; Imperial Oil Co., 76,967 bbls. At the end of the month, the Illinois held in storage 12,281 bbls. of its own oil and 262,801 bbls. for others, with unfilled storage of 23,713 bbls. At the price in effect December 31, the storage oil was valued at something over $370,000. Continental Oil Co.'s deliveries of Cat Creek crude were as follows: Standard Oil Co. of Indiana, 11,968 bbls.; Utah Oil & Refining Co., 4,348; Yale Oil & Refining Co., 7,232; Lewiston Oil & Refining Co., 19,815; North Star Oil & Refining Co., 3,596; Hart Refinery, 2,634; Utah Oil & Refining Co., (transportation account) 11,625; Weowna Refining Co., 21; Silver Box Refining Co., 2,015. The Lewistown Oil & Refining Co. holds the contract on the Government royalty oil from the Cat Creek Field; total royalty paid the Government for oil produced in December in the Cat Creek Field was $12,388.

Runs For the Week

Salt Creek	54,840
Teapot	1,690
Big Muddy	3,410
Grass Creek	2,800
Elk Basin	640
Greybull	15
Rock River	2,950
Lance Creek	2,330
Poison Spider	290
Osage	390
Hamilton Dome	1,040
Lander	210
Byron	15
Lost Soldier	4,170
Ferris	50
Cat Creek	3,110
Sunburst	8,980
Lake Basin	120
Florence	400
Moffat	3,745
Hes Dome	120
Fort Collins	2,390
Boulder	25
Tow Creek	110
Rangely	100
Hogback	540
Rattlesnake	405
Artesia	3,200
Miscellaneous	200
Total	98,295

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended February 13 totaled 1,561,000 bbls., a daily average of 149,000 bbls. for the week ended February 6 and a daily average of 189,107 bbls. for the four weeks ended February 13.

At Atlantic Coast Ports	
Baltimore	178,000
Boston	190,000
New York	503,000
Philadelphia	64,000
Others	119,000
Total	1,054,000
Daily average	150,571
At Gulf Coast Ports—	
Galveston district	155,000
New Orleans and Baton Rouge	352,000
Total	507,000
Daily average	72,429
At All United States Ports—	
Total	1,561,000
Daily average	223,000
Daily average four weeks ended	189,107

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended February 13 totaled 705,000 bbls., a daily average of 100,714 bbls., against 773,000 bbls., a daily average of 110,429 bbls., for the week ended February 6 and a daily average of 91,750 bbls. for the four weeks ended February 13.

At Atlantic Coast Ports—	
Baltimore	153,000
Boston	265,000
New York	139,000
Philadelphia	148,000
Total	705,000
Daily average	100,714
At Gulf Coast Ports—None.	
Total Atlantic and Gulf Coast ports	705,000
Daily average	100,714
Daily average four weeks ended	91,750

NORTH TEXAS MARKET IS REPORTED STAGNANT

FORT WORTH, Tex., Feb. 20.—The North Texas refined oil market seems to be somewhat demoralized and with refiners believing there will soon be further advances in crude, they are not altogether optimistic. Practically all commodities have suffered price declines, with the result there is only a very small volume moving. Refiners are loath to make quotations on large quantities and for future deliveries. Refiners in the Wichita Falls area report practically no demand whatever.

Motor oil was quoted late in the week at 9¾ to 10 cents with a very small volume of business. Export trade is also at a practical standstill. The price on this has held around 12¾ cents, but there has been very small buying.

The kerosene market is the only high spot. Water white kerosene is quoted now at 6¾ to 7 cents, some little having been sold at 6⅞ cents. Refiners generally are demanding and getting 6¾ cents. The prime white grade of kerosene is quoted at 6½ to 6¾ cents.

The fuel oil market has slumped considerably. Prices at the end of the week were $1.20 to $1.25 per barrel in the Wichita Falls district, with a slow demand and a small movement.

AMOUNT OF FREE OIL IS DECREASING RAPIDLY

(Continued from Page 23)

distance will be found in the hands of the larger companies.

There is a growing tendency upon the part of the wildcatter who makes a strike to sell out and take a quick profit. This has been true in Oklahoma more than in Kansas, and in the Sooner State for the past five years there has not been a wildcat strike of importance in which the individual has failed to dispose of his interest to a large company soon after the discovery well was completed. R. H. Smith sold out his interest in the Wewoka Pool to the Dixie Oil Co. Joe Cromwell took a couple of million and signed his interest over to the Carter Oil Co., and more recently, the Fuhrman Petroleum Co. disposed of its interest in the Fuhrman Pool to the Independent Oil & Gas Co.

Why Wildcatter Sells

To the man outside of the industry this is confusing. He fails to understand why anyone should devote years to the search for oil, and then when it is discovered sell out. The answer is that with the increased cost of drilling, the average wildcatters would have difficulty in financing the cost of development of their lease holdings, and in many cases it would be utterly impossible for them to obtain the credit for the necessary supplies. The larger companies are in a much better strategic position to gamble upon the productivity of the leases, and by larger organizations they find it possible to operate the properties at a slight increase in overhead.

Until the time when shallower sands will permit the wildcatter of more modest means to operate, the number of individual producers particularly in Oklahoma may be expected to decrease.

The accompanying tables relative to pipe line runs tell their own story, and clearly demonstrate the dominant position of the Prairie Co. Both in free and in controlled oil, the Prairie leads all other pipe line systems by a wide margin. This is not the result of recent years alone, but is the fruit of 30 years' operation, and the history and expansion of the Prairie Co. is synonymous with the history and expansion of the Mid-Continent Field.

In considering the year 1925, and the fields which it introduced, there is only one spot where the pipe lines could buy any appreciable amount of free oil, and that was at Davenport. Garber, Thomas, the Tonkawa deep sand, and South Braman were conspicuous during 1925, but practically no free oil was available from them. In each instance the crude was produced by companies having their own pipe line affiliations. Davenport offered more free oil than any field under development last year.

While the reduced amount of free oil places the bulk of production in the hands of the larger companies, it will also stimulate competition for the free oil which remains, and the producer who remains in business will find himself in an enviable position as a result of this competitive attitude upon the part of the pipe lines.

GUATEMALA OIL RIGHTS

The minerals section of the United States Bureau of Commerce has been informed that the holders of title to petroleum rights over a large area in Guatemala are desirous of making contracts with American petroleum companies for the development of their holdings.

REFINING AND MARKETING

WAVERLY OIL MERGED WITH PITTSBURGH FIRM

A merger of the refining and distributing facilities of the Waverly Oil Works Co. and the Pittsburgh Oil & Refining Co. involving a reorganization of the combined companies was completed during the past week. The new concern will continue under the name of the Waverly Oil Works Co.

Thomas J. Hilliard, who has been president of the Pittsburgh Oil & Refining Co., will head the new organization. H. R. Hilliard will be vice president and treasurer with George J. Willock and D. W. Hovey assisting in the management. Mr. Willock will have charge of sales and Mr. Hovey, the company's refineries. The board of directors will include Messrs. T. J. and H. R. Hilliard, C. Dudley Armstrong, vice president of the Armstrong Cork Co.; S. M. Vockel of S. M. Vockel & Co., and George J. Willock.

Harry J. Willock, well known figure in Eastern oil circles, who has been secretary of the Waverly Oil Works Co., will not be active in the management of the new company. D. E. Weir, former president of the Waverly Oil Works Co., will remain with the company.

The business of the Waverly Oil Works Co. is one of the oldest in Pittsburgh. It was established in 1880 by S. M. Willock. In 1908, at his death, the company was incorporated under the laws of Pennsylvania. During 1919-1920 a large modern plant consisting of seven stories and basement, was erected for the manufacture of greases, soap and oils. In 1920, there was erected at Carteret, N. J., on New York Bay, in association with several other refiners, a waterfront plant for barreling and casing "Waverly products" for export trade.

The Pittsburgh Oil & Refining Co. was organized in January, 1923, to take over the properties of the Pittsburgh Oil & Refining Corp. at Coraopolis. The refinery now has a capacity of 70,000 bbls. a month.

During 1925, both companies refined a total of 1,100,000 bbls. of crude oil. Through the merger it is expected to divert the products of the Coraopolis refinery to the retail trade, with increased profits to the producer.

The Waverly plant occupies 5 acres in Lawrenceville and the Pittsburgh Oil & Refining Co. 15 acres at Corapolis. The plants of the Waverly Co. are valued at $1,244,142, and the Pittsburgh Oil & Refining Co., $659,733. The combined company owns 158 all-steel tank cars.

GASOLINE STOCKS UP EAST OF CALIFORNIA

Gasoline stocks east of California increased over 1,000,000 bbls. during the month of January, according to the American Petroleum Institute's monthly report. The report is based on 61 per cent of the operating capacity of the area. Kerosene and fuel and gas oil stocks were reduced during the month.

Following is a summary of the report for January, covering refinery operations east of California:

Domestic crude oil		166,000
Foreign crude oil	61,000	
Oil for re-running	24,000	
Gasoline	1,013,000	
Kerosene		812,000
Gas and fuel oil		1,681,000
Lubricating	68,000	
Miscellaneous		298,000
Total	1,166,000	2,957,000
Deduct		1,166,000
Net decrease		1,791,000

ARIZONA GASOLINE TAX

The State of Arizona collected $855,950 from its 3-cent tax on gasoline during the year 1925. The gasoline sold in the State totaled 28,531,638 gallons during the year.

CHANGE IN OFFICERS OF TEXHOMA COMPANY

S. H. Keoughan, president of the Continental Oil Co. has been elected president of the Texhoma Oil & Refining Co. at Wichita Falls, Tex. Mr. Keoughan succeeds W. B. Hamilton, who continues as one of the directors of the company. The change in officers follows the recent sale in which the Continental Oil Co. obtained a controlling interest in the stock of the Texhoma.

E. H. Eddleman was re-elected vice president of the Texhoma. J. D. Bright, former secretary was made assistant secretary. Other officers selected were as follows:

W. H. Ferguson of Denver, vice president; Walter Alexander of Houston, vice president; G. F. Smith of Denver, treasurer; and H. P. Ferree of Denver, secretary.

The directors of the corporation are: E. T. Wilson, Denver; S. H. Keoughan, Denver; E. H. Eddleman, Wichita Falls; W. H. Ferguson, Denver; Walter Alexander, Houston; J. J. Perkins, Wichita Falls; W. B. Hamilton, Wichita Falls; G. F. Smith, Denver; and N. H. Martin, Wichita Falls.

BARNSDALL REFINERIES REORGANIZATION NAME

Reorganization of the Barnsdall Refining Co. of Delaware under the name, Barnsdall Refineries, Inc., is under way and will be completed March 1, it was announced at Tulsa offices the past week. While there may be no important changes in the official personnel, the new organization is being made to operate the Barnsdall plant of the Barnsdall Refining Co. and the two plants, at Okmulgee, Okla. and Wichita, Kan., recently acquired from the Waite Phillips Co.

The reorganization will not affect the Barnsdall Refining Co. of Maine, which will continue to operate as the distributing company. Present officers of the Barnsdall Refining Co. of Delaware, which after March 1 will be the Barnsdall Refineries, Inc., are: E. B. Reeser, president; E. O. Bartlett, F. E. Holstein and George Locke, vice presidents; H. M. Edinger, treasurer; H. L. Hughes, assistant treasurer and sales manager, and James Dunn, secretary.

ROBINSON PRESIDENT OF TIDAL REFINING CO.

Succeeding E. L. Shea, resigned, J. N. Robinson was elected president of the Tidal Refining Co. and the Tidal-Western Oil Corp., at a meeting of directors last week. Other officers were re-elected as follows: L. F. Bayer, vice president and general manager; A. F. Garrett, vice president and assistant general manager; D. W. Bell, secretary and treasurer; A. D. Kennedy, assistant treasurer, and William J. Burker, assistant secretary.

Mr. Shea recently resigned as president of the two companies to devote his full time to other duties as head of the operating department of the Tide Water Oil Co. Mr. Robinson, the new president, also is connected with the Tide Water Oil Co.

CARBON BLACK APPLICATION

AUSTIN, Tex., Feb. 20.—Application of the Diamond Carbon Black Corp. for a permit to establish the first carbon black plant in Comanche County, was reset for February 27 by the Railroad Commission. It was first docketed for March 3. The corporation is asking permits for two units, one to burn 2,000,000 feet of residue casinghead gasoline gas and the other to burn 8,000,000 feet daily in a plant at Sipe Springs.

DIFFERENTIAL CASE HEARINGS AT TULSA

Commissioner Koch, of the Interstate Commerce Commission, who has been holding hearings in connection with Docket 12,798—the port differential case—at New Orleans and Galveston during the past three weeks, has set March 9 as a tentative date for a hearing to be held at Tulsa. Previous to this date hearings will be held at Fort Worth starting about March 1.

It is expected that the hearing at Tulsa will be devoted exclusively to securing the testimony of oil companies. This case involves proposed changes in the present differentials existing between Louisiana and Texas Gulf ports on freight for export movement. The plaintiff in the case is the Galveston Commercial Association which seeks to obtain certain rate changes which will be favorable to the Texas ports. Several months ago the Interstate Commerce Commission gave a decision favorable to the plaintiff. The present testimony is being taken on a rehearing.

All products for export movement are involved in the case. Southwestern refiners and exporters are interested in the case primarily because the proposed changes in rates would destroy the existing differentials between Louisiana and Texas Gulf ports in the shipment of gasoline for export movement. At New Orleans several refiners and exporters were heard in opposition to the proposed changes. The testimony now being taken at Galveston is in support of the plaintiff's position.

The testimony to be taken at Fort Worth will probably not concern the oil end of the case as the North Texas group of refiners have asked to present their testimony at Tulsa.

GEORGIA MARKETERS MEET

ATLANTA, Ga., Feb. 20.—At a meeting of the oil men of Alabama and Georgia held at Atlanta, the Georgia-Alabama Independent Petroleum Marketers Association was formed with the following officers: J. W. Handley of the Palm Oil & Supply Co., Mobile, Ala., president; R. N. Reed, Reed Oil Co., Atlanta, Ga., first vice president; Clayton Boardman, Peoples Oil Co., Augusta, Ga., second vice president; J. O. Robertson, Waco Pep Oil Co., Tuscaloosa, Ala., third vice president; Wylie Moore, Wofford Oil Co. of Georgia, Atlanta, Ga., secretary-treasurer. The directors are the officers named and D. L. Gilland, R. T. Jones and J. E. McComb. A banquet was held the first night which was addressed by Attorney General Napier of Georgia, L. V. Nicholas and others.

CITIES SERVICE SALES

The sale of furnace oil and distillates for house heating increased 30 per cent during 1925, over 1924, according to an annual report of sales by the Cities Service Co. The increase in furnace oils and distillates was greater than any other product. More than 311,000,000 gallons of gasoline were marketed in 1925 by the subsidiaries of Cities Service Co. Over 360,000,000 gallons of other products were distributed. The gross business done by the marketing and refining companies of the organization reached a total of more than $100,000,000 for the year.

OKLAHOMA PRODUCTION

Additional reports filed with the State Auditor on gross crude oil production in Oklahoma during the fourth quarter of 1925 are: Frank M. Breene and others, Tulsa, 12,897 bbls. and C. G. Tibbens, Tulsa, 259,554 bbls. These reports make the total gross production of Oklahoma for the last three months of 1925 43,061,687 bbls.

GASOLINE PRICES POINT TO HIGHER CRUDE PRICES

LOS ANGELES, Calif., Feb. 19.—During the past week there has been no very important change in the Pacific Coast oil market. One interesting feature is the apparent tightening in the crude situation. The big companies are only meeting contract obligations, thereby holding on to all the crude that they can. Marketers are interpreting this move to mean that crude prices will soon be revised upward. A continuation of this policy will undoubtedly force higher prices as buyers are already offering premiums for crude. As yet the larger producers have not been anxious to sell their crude at the small premiums offered.

Figures recently released by the State show that the 2-cent State gasoline tax was paid on 801,659,749 gallons during the year 1925, as against 719,566,174 gallons in 1924. California motorists, therefore, used 82,093,573 gallons more of gasoline during the past year than during 1924. This is an increase in consumption of 11 per cent.

The State received $16,033,194.94 from the gasoline tax in 1925, which is an increase of $1,641,871.46 over total receipts in 1924. It is gratifying to the oil industry that the increased revenue from this source was so substantial, as steps have already been taken to have a measure placed on the ballot at the next general election in November increasing the present gasoline tax. The increase realized during 1925 from the tax now in force will therefore be of no value in convincing the voters that the present tax is large enough should this matter be brought to a vote.

The California Petroleum Corp. is beginning to market its products under the name of "Calpet." At the Ventura service stations, recently taken over by the California Petroleum Corp., it is marketing both Ventura gasoline and "Calpet" gasoline. Tank trucks delivering this gasoline carry the "Calpet" trade mark while the company has been advertising its products under the name of "Calpet" for some time. It is the belief of some marketers that this company intends, in the not too distant future, to operate all marketing properties owned by it under the name of "Calpet." If it does consolidate its marketing facilities and continues its present rate of expansion, the California Petroleum Corp. will soon become one of the leading marketing companies in California.

Gasoline Gallonage on Which Tax Was Collected During the Year 1925 From the Nine Largest Marketers in California

	Gallons
Standard Oil Co.	57,697,525
Shell Co. of California	33,386,622
Richfield Oil Co.	26,549,403
Union Oil Co.	23,101,447
Associated Oil Co.	21,461,717
General Petroleum Corp.	9,806,340
Pan American Petroleum Co.	6,925,877
Ventura Refining Co.	6,316,002
Marine Oil Co.	5,766,342

PETROLEUM CLUB GROWING

CHICAGO, Feb. 20.—The luncheon of the Chicago Petroleum Club was, in spite of the severe blizzard which made traveling even short distances very uncomfortable to say the least, was well attended and enjoyable. There were about 35 oil men present. These meetings are intended to increase mutual acquaintance among the local oil men and improve their relations. Luncheon dinners are held every Thursday noon at the Auditorium Hotel and all oil men are welcome.

RICHFIELD PIPE LINE

LOS ANGELES, Calif., Feb. 20.—The Richfield Oil Co. is building a pipe line between its refining plant at Hines and the new extension of the Signal Hill Field. The line will be 4½ miles long, and is being laid with 8-inch pipe.

GENERAL STEEL PLATE CONSTRUCTION

Graver Builds

Tanks
Welded
Riveted
Combination
(Riveted, Inside & Outside Welded)
Structural Supports
Tower Tanks
Standpipes
Any Size Tanks
Erected Anywhere

Refinery Equipment

Jenkins Cracking Process

Stacks-Breechings

General Steel Plate Construction

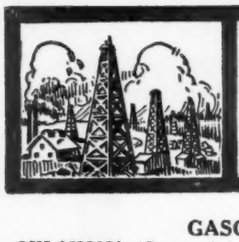
Water Softeners
Hot Process
Cold Process
Zeolite
Household

Filters—*Pressure*

Purifying Systems for Swimming Pools

GRAVER Corporation Founded 1857
EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO Steger Building | TULSA Atlas Life Bldg. | HOUSTON West Building



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Feb. 23		Feb. 16		Feb. 9	
OKLAHOMA (Group 3)—						
50-52 450 end point	.09⅜	.09½	.09½	.09⅝	.09⅜	.09¾
56-58 450 end point	.09½	.09¾	.09¾		.09⅞	.10⅛
58-60 437 end point (U. S. Motor)	.10	.10¼	.10	.10½	.10½	.10¾
60-62 400 end point	.11¾	.12	.11¾	.12	.12	.12¼
64-66 375 end point	.12½	.12¾	.12¾	.13	.12¾	.13
68-70 360 end point	.13	.13½	.13¼	.13½	.13⅜	.13⅝
KANSAS—						
58-60 437 end point (U. S. Motor)	.10¼	.10½	.10½	.10¾	.10¾	.11
NORTH TEXAS—						
48-50 450 end point (Naphtha)	.09	.09¼	.09	.09¼	.09¼	.09½
50-52 450 end point (Naphtha)	.09¼	.09⅜	.09¼	.09⅜	.09¼	.09⅝
56-58 450 end point	.09⅜	.09½	.09½	.09¾	.09¾	.10
58-60 437 end point (U. S. Motor)	.09⅞	.10	.09⅞	.10⅛	.10	.10¼
60-62 400 end point	.11¾	.12	.11¾	.12	.11¾	.12
64-66 390 end point	.12½	.12¾	.12⅝	.12¾	.12¾	.13
64-66 375 end point	.12¾	.13	.12⅞	.13⅛	.13	.13¼
68-70 360 end point	.13	.13¼	.13¼	.13½	.13¼	.13½
NORTH LOUISIANA—						
56-58 450 end point	.09¾	.10	.09¾	.10	.09¾	.10
58-60 437 end point (U. S. Motor)	.10¼	.10½	.10¼	.10½	.10¼	.10½
60-62 400 end point	.12	.12⅛	.12	.12¼	.12¼	.12½
64-66 390 end point	.12¾	.13	.13¼	.13½	.13⅜	.13⅝
64-66 375 end point	.13	.13¼	.13½	.13⅝	.13⅝	.13¾
ARKANSAS—						
58-60 450 end point	.10	.10¼	.10¼	.10¼	.10½	.10¾
58-60 437 end point (U. S. Motor)	.10¼	.10½	.10½	.10¾	.10¾	.11
64-66 375 end point	.12¾	.13	.13¼	.13½	.13½	.13¾
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (U. S. Motor)	.13	.13¼	.13¼	.13½	.13½	.13¾
PENNSYLVANIA—						
52 Naphtha	.11¼	.11½	.11¼	.11½	.11¼	.11½
54 Naphtha	.11½	.11¾	.11½	.11¾	.11½	.11¾
56 Naphtha	.12	.12¼	.12	.12¼	.12	.12¼
58 Naphtha	.12½	.12¾	.12½	.12¾	.12½	.12¾
60 Gasoline	.13¼	.13½	.13¼	.13½	.13¼	.13½
62 Gasoline	.14	.14¼	.14	.14¼	.14	.14¼
64 Gasoline	.14½	.14¾	.14½	.14¾	.14½	.14¾
66 Gasoline	.16¼	.16½	.16¼	.16½	.16¼	.16½
68-70 Gasoline	.19½	.19¾	.19½	.19¾	.19½	.19¾
CALIFORNIA—						
54-58 437 end point (U. S. Motor) domestic	.11	.11½	.11	.11½	.11	.11½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 end point (Naphtha)	.09½	.09⅝	.09½	.09¾	.09⅜	.09¾
56-58 450 end point	.09¾		.09¾	.10	.09⅞	.10⅛
58-60 437 end point (U. S. Motor)	.10	.10¼	.10¼	.10½	.10½	.10¾
60-62 400 end point	.11¾	.12	.11¾	.12	.12	.12¼
64-66 375 end point	.12½	.12¾	.12¾	.13	.13	.13¼
68-70 360 end point	.13	.13½	.13¼	.13½	.13⅜	.13¾

*Colorado points.

NATURAL GASOLINE

	Feb. 23		Feb. 16		Feb. 9	
OKLAHOMA (Group 3)—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.09¾	.10	.09¾	.10	.09¾	.10
Grade A, 72-79.9, 375 end point, rec. 90%	.09¾	.10	.10		.10	
Grade Double B, 84-92, 375 e.p., rec. 85%	.08¾	.09	.08¾	.09	.08¾	.09
Grade B, 76-83.9, 375 end point, rec. 85%	.09		.09	.09¼	.09	.09¼
Grade C, 80-90, 375 end point, rec. 78%	.08¼	.08½	.08¼	.08½	.08⅝	.08¾
NORTH TEXAS—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.09¾	.10	.10	.10¼	.09¾	.10
Grade A, 72-79.9, 375 end point, rec. 90%	.10		.10	.10¼	.10	
Grade Double B, 84-92, 375 e.p., rec. 85%	.09	.09¼	.09	.09¼	.08¾	.09
Grade B, 76-83.9, 375 end point, rec. 85%	.09	.09¼	.09	.09¼	.09	.09¼
Grade C, 80-90, 375 end point, rec. 78%	.08⅝	.08½	.08½		.08¾	.09
NORTH LOUISIANA—						
Grade A, 72-79.9, 375 end point, rec. 90%	.10½	.10¾	.10½		.10¾	.11
Grade B, 76-83.9, 375 end point, rec. 85%	.10		.09¾	.10	.09¾	.10
Grade C, 80-90, 375 end point, rec. 78%	.09	.09¼	.08¾	.09	.09¼	.09½
CALIFORNIA—						
78-85 absorption, 360-390 end point	.15	.15½	.15	.15½	.15	.15½
78-84 compression, 350 end point	.15	.15½	.15	.15½	.15	.15½
CHICAGO DISTRICT (Based on Group 3)—						
Grade Double A, 80-87.9, 375 e. p., rec. 90%	.09¾	.10	.10	.10¼	.10	.10¼
Grade A, 72-79.9, 375 end point, rec. 90%	.10	.10¼	.10	.10¼	.10	.10¼
Grade Double B, 84-92, 375 e.p., rec. 85%	.09	.09¼	.09	.09¼	.09	.09¼
Grade B, 76-83.9, 375 end point, rec. 85%	.09	.09¼	.09	.09¼	.09	.09¼
Grade C, 80-90, 375 end point, rec. 78%	.08⅜	.08½	.08½		.08½	.08¾

MOTOR NATURAL GASOLINE (BLENDS)

	Feb. 23		Feb. 16		Feb. 9	
OKLAHOMA (Group 3)—						
60-62 450 end point	.10		.10	.10¼	.10½	
64-66 437 end point	.10¼	.10½	.10½	.10¾	.11	.11¼
68-70 430-435 end point	.10¾		.11		.11½	
NORTH TEXAS—						
64-66 437 end point	.10	.10¼	.10½		.10½	.10¾
PENNSYLVANIA—						
*60-62	.12½	.12¾	.12½	.12¾	.12½	.12¾
*64-66	.12¾	.13	.12¾	.13	.12¾	.13
*66-68	.13		.13		.13	
*68-70	.13		.13		.13	
CHICAGO DISTRICT (Based on Group 3)—						
60-62 450 end point	.10		.10	.10¼	.10¼	.10½
64-66 437 end point	.10½	.10¾	.10½	.10¾	.11	.11¼

*At Sistersville, W. Va.

BURNING OIL

	Feb. 23		Feb. 16		Feb. 9	
KANSAS—						
41-43 water white Kerosene	.07	.07¼	.07	.07¼	.06½	
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.06¾	.07	.06¾		.06⅜	.06½
42-44 water white Kerosene	.07	.07¼	.06⅞	.07	.06⅝	.06¾
NORTH LOUISIANA—						
41-43 prime white Kerosene	.07¼	.07½	.07	.07¼	.06½	.06⅝
42-44 water white Kerosene	.07½		.07¼	.07½	.06¾	.07
ROCKY MOUNTAIN STATES—						
*40-41 water white Kerosene	.09¾	.10	.09¾		.09⅜	.09½
NORTH TEXAS—						
41-43 water white Kerosene	.06¾	.06⅞	.06½	.06¾	.06⅜	.06½
40-42 prime white Kerosene	.06½	.06⅝	.06½		.06	.06¼
41-43 prime white Kerosene	.06⅝	.06¾	.06½	.06⅝	.06¼	.06⅜
42-44 water white Kerosene	.07		.06¾	.06⅞	.06½	.06⅝
ARKANSAS—						
41-43 water white Kerosene	.07	.07¼	.06⅞	.07	.06¼	.06½
42-44 water white Kerosene	.07½		.07	.07¼	.06½	.06⅝
PENNSYLVANIA—						
43 Kerosene prime white	.08	.08¼	.08	.08¼	.07½	.07⅝
45 Kerosene water white	.08½	.08¾	.08½	.08¾	.08	.08¼
46 Kerosene water white	.09	.09¼	.09	.09½	.08¼	.08¾
47 Kerosene water white	.10	.10¼	.09½	.10	.09¼	.09½
34 Neutral	.07¾	.08	.07¾	.08	.07¾	.08
34 Sundebloom Neutral	.08¾	.09	.08¾	.09	.08¾	.09
36 Miners Neutral	.07	.07¼	.07	.07¼	.07	.07¼
300 Mineral Seal	.07¾	.08	.07¾	.08	.07½	.08
CALIFORNIA—						
40-42 water white (high burning test)	.07½	.08	.07½	.08	.07⅛	.08
Engine distillate, 43-45 445 end point	.08½	.09	.08½	.09	.08½	.09
Engine distillate, 42-44 450 end point	.08¼	.08½	.08¼	.08½	.08¼	.08½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.06¾	.06⅞	.06¾	.06⅞	.06¼	.06½
42-44 water white Kerosene	.07	.07¼	.06⅞	.07	.06½	.06¾

*Colorado points.

FUEL OILS

	Feb. 23		Feb. 16		Feb. 9	
KANSAS—						
24-26 Fuel Oil	1.22½	1.25	1.25	1.30	1.30	1.35
32-36 Gas Oil	.03⅞	.04	.03¾	.04	.03⅞	.04
38-40 Distillate	.04	.04⅛	.04	.04⅛	.04	.04⅛
OKLAHOMA (Group 3)—						
Below 22 Fuel Oil (sellers' cars)	1.15	1.17½	1.15	1.17½	1.15	1.17½
22-26 Fuel Oil (sellers' cars)	1.17½	1.20	1.17½	1.20	1.17½	1.20
24-26 Fuel Oil (buyers' cars)	1.20	1.25	1.22½	1.25	1.22½	1.25
24-26 Fuel Oil (sellers' cars)	1.22½	1.25	1.22½	1.25	1.25	
28-30 Fuel Oil (sellers' cars)	1.35		1.32½	1.35	1.35	
32-36 Gas Oil (dark)	.03¾	.03⅞	.03⅝	.03¾	.03⅜	.03¾
32-36 Gas Oil (light)	.03¾	.03⅞	.03¾	.03⅞	.03⅜	.03⅞
36-38 Distillate	.03⅞	.04	.03¾	.03⅞	.03¾	.03⅞
38-40 Straw Distillate	.04	.04⅛	.03⅞	.04	.03⅞	.04
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.20	1.25	1.25	1.27½	1.25	1.30
26-30 Fuel Oil	1.30		1.35	1.40	1.35	1.40
32-36 Gas Oil (dark)	.03⅝	.03¾	.03½	.03⅝	.03½	.03⅝
32-36 Gas Oil (light)	.03¾		.03⅝	.03¾	.03⅜	.03¾
38-40 Straw Distillate	.03⅞	.04	.03¾	.04	.03¾	.04
NORTH LOUISIANA—						
18-20 Fuel Oil	1.15	1.17½	1.15	1.17½	1.15	1.20
32-36 Gas Oil	.03¾	.04	.04		.04	.04⅛
ARKANSAS—						
38-40 Distillate	.04	.04⅛	.04	.04⅛	.04	.04⅛
32-36 Gas Oil	.03¾	.03⅞	.03¾	.03⅞	.03¾	.03⅞
16-20 Refinery Fuel Oil	1.10		1.10	1.15	1.20	1.25
GULF COAST (South Texas)—						
Gas Oil	.05	.05¼	.05	.05¼	.05	.05¼
Fuel Oil	1.65	1.70	1.65	1.70	1.65	1.70
PENNSYLVANIA—						
30-34 Fuel Oil	.05¾	.06	.05¾	.06	.05¾	.06
36-40 Fuel Oil	.06¼	.06½	.06¼	.06½	.06¼	.06½
CALIFORNIA—						
33-36 Distillate	.04¾	.05	.04¾	.05	.04¾	.05
27-35 Distillate	.04	.04½	.04	.04½	.04	.04½
15-20 Fuel Oil (at tidewater)	1.00	1.04	1.00	1.04	1.00	1.04
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil (sellers' cars, Group 3)	1.20	1.22½	1.20	1.22½	1.25	
18-22 (El Dorado)	1.15	1.17½	1.15	1.17½	1.20	1.25
18-20 (Smackover)	1.10	1.15	1.10	1.15	1.10	1.15
32-36 Gas Oil	.03¾	.03⅞	.03¾	.03⅞	.03¾	.04
36-38 Distillate	.03⅞	.04	.03¾	.03⅞	.03¾	.03⅞
38-40 Straw Distillate	.04	.04¼	.04	.04⅛	.04	.04⅛

LUBRICATING OILS AND WAX

	Feb. 23		Feb. 16		Feb. 9	
OKLAHOMA (Group 3)—						
70-80 vis., 2½ color, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06¼
100 vis., 3 color, 20-25 cold test	.06½	.07	.06½	.07	.06½	.07
100 vis., 2 color, 20-25 cold test	.07	.07½	.07	.07½	.07	.07½
150 vis., 3 color, 20-25 cold test	.09½	.10	.09½	.10	.09½	.10
150 vis., 4 color, 20-25 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
180 vis., 4 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
180 vis., 3 color, 23-28 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
200 vis., 3 color, 23-28 cold test	.11¼	.11¾	.11¼	.11¾	.11¼	.11¾
200 vis., 4 color, 23-28 cold test	.11	.11½	.11	.11½	.11	.11½
220 vis., 3 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
220 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
240 vis., 3 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
240 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
280 vis., 3 color, 25-30 cold test	.16¼	.17	.16¼	.17	.16¼	.17
280 vis., 4 color, 25-30 cold test	.16	.16½	.16	.16½	.16	.16½
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
180 vis., 6 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
200 vis., 5 color, 23-28 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
200 vis., 6 color, 23-28 cold test	.11½	.12	.11½	.12	.11½	.12
220 vis., 5 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
220 vis., 6 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 5 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 6 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
280 vis., 5 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
Cylinder Stocks:						
180-200 vis., S. R. green, 40-45 cold test	.08½	.11	.08½	.11	.08½	.11
190-200 vis., S. R. green, 40-45 cold test	.08	.08½	.08	.08½	.08	.08½
170-190 dark green, 40-45 cold test	.06½	.07	.06½	.07	.06½	.07

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

190-20 vis. @ 210 "D" Bright Stock	.33	.35	.33	.35	.33	.35
200-210 vis. @ 210 "E" Bright Stock	.30	.31	.30	.31	.30	.31
150 vis. @ 210 "E" Bright Stock	.27	.28	.27	.28	.27	.28
150 vis. @ 210 "D" Bright Stock	.28	.31	.28	.31	.28	.31
Waxes:						
124-126 White Crude Scale Wax	.04⅞	.05	.04⅞	.05	.04⅞	.05
PENNSYLVANIA—						
150, 3 color	.21		.21		.20	
180, 3 color	.25		.25		.24½	
200, 3 color	.27¼		.27¼		.26¾	
220, 3 color	.28½		.28½		.28	
620, steam refined	.18¼		.18¾		.18¼	
635, steam refined	.21½		.22¼		.21¾	
650, steam refined	.22½		.23½		.23	
600, Pennsylvania flash	.27		.27		.26½	
630, Pennsylvania flash	.36		.36		.35	
*550, E filtered	.20¾		.20¾		.20	
600, E filtered	.21¼		.21½		.21½	
*600, E filtered	.22¾		.22¾		.22	
600, D filtered	.27½		.27½		.27	
550, E filtered	.20		.20		.19	
550, D filtered	.22¼		.22¼		.21¾	
Pennsylvania Bright Stock	.38½		.38½		.38½	
122-124 White Crude Scale Wax	.05⅝	.05½	.05⅝	.05½	.05⅝	.05½
†124-126 White Crude Scale Wax	.05½	.05⅝	.05½	.05⅝	.05½	.05⅝

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
Zero Black	.06	.07	.06	.07	.06	.07
No. 2 color, 100 vis., pale oil	.07½	.08	.07½	.08	.07½	.08
No. 2½ color, 150 vis., pale oil	.10	.10½	.10	.10½	.10	.10½
No. 3 color, 200 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 3½ color, 300 vis., pale oil	.12½	.14	.13½	.14	.13½	.14
No. 3¾ color, 500 vis., pale oil	.15½	.16	.15½	.16	.15½	.16
No. 4 color, 750 vis., pale oil	.19½	.20½	.19½	.20½	.19½	.20½
No. 1½ plus color, 150 vis., pale filtered	.22		.22		.22	
No. 2 plus color, 200 vis., pale filtered	.23½		.23½		.23½	
No. 2 color, 300 vis., pale filtered	.27½		.27½		.27½	
No. 2½ color, 500 vis., pale filtered	.31½		.31½		.31½	
No. 2½ color, 750 vis., pale filtered	.41½		.41½		.41½	
No. 5 to 6 color, 200 vis., red oil	.10	.10½	.10	.10½	.10	.10½
No. 5 to 6 color, 300 vis., red oil	.12	.12½	.12	.12½	.12	.12½
No. 5 to 6 color, 500 vis., red oil	.13½	.14	.13½	.14	.13½	.14
No. 5 to 6 color, 750 vis., red oil	.18	.18½	.18	.18½	.18	.18½
CALIFORNIA—						
130 pale, 2½-3 color	.10	.10½	.10	.10½	.10	.10½
200 vis., 2½-3 color	.13½	.14½	.13½	.14½	.13½	.16
300 vis., 3 -3½ color	.15	.16	.15	.16	.15	.17½
350 vis., 3½-4 color	.16½	.17	.16½	.17	.16½	.19
400 vis., 3½-4 color	.18	.19	.18	.19	.18	.20½
Red Neutrals:						
200 vis., 4½-5 color	.12	.13	.12	.13	.12	.14½
300 vis., 5 -6 color	.13	.14	.13	.14	.13	.15½
400 vis., 5 -6 color	.15	.16	.15	.16	.15	.17½
500 vis., 4½-5 color	.18	.19	.18	.19	.18	.21
500 vis., 6 -6½ color	.16	.17	.16	.17	.16	.19
600 vis., 6½ plus color	.17	.18	.17	.18	.17	.19½

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK DOMESTIC MARKET

Bayonne Refinery Prices:	Feb. 23	Feb. 16	Feb. 9
U. S. Motor Gasoline, 58-60 437	.14	.14	.13
*Bunker Oil 14-16 Be.	1.75	1.75	1.75
*Diesel Oil, New York City	2.20	2.20	2.20
Furnace Oil, New York City	.10	.10	.10
Gas Oil, 28 plus	.05½	.05½	.05½
41-43 Kerosene prime white	.08	.07½	.07¼

*Lighterage 6.5c a barrel extra.

NEW YORK EXPORT PRICES

Motor Gasoline:	Feb. 23	Feb. 16	Feb. 9
58-60 Be. gravity, in cases	.28.15	.28.15	.28.15
Standard white Kerosene, in cases	.18.40	.18.40	.18.40
Water white Kerosene, in cases	.19.90	.19.90	.19.90
Export Gasoline, 64-66 Be.	.17	.17	.16
†Lubricating Oils (in bulk):			
Cylinder Stock, extra filtered, 600 bbls.	.34	.34	.34
Cylinder Stock, light filtered, 600 bbls.	.29	.29	.29
No. 5 Bright Stock, .897 spec. grav.	.40	.40	.40
No. 1 White Neutral, .878 spec. grav.	.35	.35	.35
Pale oil, "25" .898 spec. grav.	.12	.12	.12
Pale oil, "28" .892 spec. grav.	.07½	.07½	.07½
Special "A" red oil, .897 spec. grav., 170 vis.	.10½	.10½	.10½
No. 2 red oil, .903 spec. grav., 212 vis.	.11	.11	.11
No. 1 red oil, .905 spec. grav., 265 vis.	.13	.13	.13
Polar red oil, .903 spec. grav., 295 vis.	.13½	.13½	.13½
Paraffin Wax:			
120-122 a.m.p., per lb.	.06⅛	.06⅛	.06⅛
125-127 a.m.p., per lb.	.06¼	.06¼	.06¼
130-132 a.m.p., per lb.	.06½	.06½	.06½
135-137 a.m.p., per lb.	.07⅛	.07⅛	.07⅛
Petrolatum, in bbls., car load lots, per lb.:			
Amber	.03½	.03½	.03½
Light amber	.03¾	.03¾	.03¾
Cream	.06	.06	.06
Lily white	.08	.08	.08
Snow white	.10	.10	.10

†All lub prices in barrels.

LOS ANGELES EXPORT PRICES

	Feb. 23		Feb. 16		Feb. 9	
Kerosene water white	.05	.05½	.05	.05½	.05	.05½
U. S. Motor Gasoline, 54-54 437 end point	.08	.10	.08	.10	.08	.10

CRUDE OIL PRICES

Arkansas and North Louisiana

Caddo, 38° and above	$2.20
35° to 37.9°	2.10
32° to 34°9°	2.00
Below 32°	1.85
Homer, 35° and above	1.95
32° to 34.9°	1.85
31° to 32.9°	1.75
Below 31°	1.60
Haynesville, 33° and above	1.85
Below 33°	1.75
El Dorado, 33° and above	1.85
Below 33°	1.75
Bull Bayou, 38° and above	2.00
35° to 37.9°	1.85
32° to 34.9°	1.70
Cotton Valley	1.10
De Soto	2.05
Crichton	1.85
Bellevue	1.65
*Stephens, Ark:	
Below 26°	1.30
26° and above	1.50
**Calion	.95
†Urania	1.50
Smackover:	
Below 24°	1.00
24° to 24.9°	1.25
25° to 25.9°	1.30
26° to 26.9°	1.35
27° and above	1.40

*Posted by Atlantic Oil Producing Co.
†Posted by Louisiana Oil & Refining Co.
**Posted by Gulf Pipe Line Co.

Wyoming, Montana, New Mexico and Colorado

Rock Creek, (Wyo.)	2.00
Salt Creek:	
29° to 29.9°	1.48
30° to 30.9°	1.56
31° to 31.9°	1.64
32° to 32.9°	1.72
33° to 33.9°	1.80
34° to 34.9°	1.88
35° to 35.9°	1.96
36° to 36.9°	2.04
37° and above	2.12
Big Muddy	2.00
Mule Creek	1.50
Grass Creek (light)	2.15
Grass Creek (heavy)	.90
Elk Basin	2.15
Lance Creek	2.15
Osage	2.15
Cat Creek (Mont.)	2.15
Sunburst (Mont.)	1.15
Lost Soldier	1.10
Greybull and Torchlight	1.90
Hamilton Dome	1.55
Hogback, (N. Mex.)	1.95
Artesia, (N. Mex.)	1.70
Florence, (Colo.)	1.35

Lost Soldier and Lander based on contracts.

Oklahoma, Kansas, North and East Central Texas

*Prairie Oil & Gas Co. and other major purchasing companies except as noted.

28° to 28.9°	1.40
29° to 29.9°	1.48
30° to 30.9°	1.56
31° to 31.9°	1.64
32° to 32.9°	1.72
33° to 33.9°	1.80
34° to 34.9°	1.88
35° to 35.9°	1.96
36° to 36.9°	2.04
37° to 37.9°	2.12
38° to 38.9°	2.20
39° to 39.9°	2.28
40° to 40.9°	2.36
41° to 41.9°	2.44
42° to 42.9°	2.52
43° to 43.9°	2.60
44° to 44.9°	2.68
45° to 45.9	2.76
46° to 46.9°	2.84
47° to 47.9°	2.92
48° to 48.9°	3.00
49° to 49.9°	3.08
50° to 50.9°	3.16
51° to 51.9°	3.24
52° and above	3.32

*Champlin Refining Co. posts a schedule of 25 cents additional on each grade of crude above 38° gravity.

**Texhoma Oil & Refining Co.
(For Wichita Falls, Tex., Distdict)

Below 32°	$1.88
32° to 32.9°	1.94
33° to 33.9°	2.00
34° to 34.9°	2.06
35° to 35.9°	2.12
36° to 36.9°	2.18
37° to 37.9°	2.24
38° to 38.9°	2.30
39° to 39.9°	2.36
40° to 40.9°	2.42
41° to 41.9°	2.48
42° to 42.9°	2.54
43° to 43.9°	2.60
44° and above	2.69

**Humble Oil & Refining Co.
(North Texas, Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran.)

Below 25°	1.08
25° to 25.9°	1.16
26° to 26.9°	1.24
27° to 27.9°	1.32

Other grades same as Prairie Oil & Gas Co.

**Magnolia Petroleum Co.
(Oklahoma, Kansas and Texas)

Below 28°	1.20

Other grades same as Prairie Oil & Gas Co.

Iatan	1.15
Mirando City	1.05
Corsicana heavy	1.15
Thrall	1.00
Panhandle:	
(Posted by Kay County Gas Co.)	
Below 31°	1.15
31° to 33.9°	1.30
34° to 36.9°	1.50
37° to 39.9°	1.65
40° and above	1.70
Gypsy Oil Co.—	
Bristow, Glenn Pool, Morris and Perryman:	
25° to 25.9°	1.16
26° to 26.9°	1.24
27° to 27.9°	1.32

Other grades same as Prairie Oil & Gas Co.

Gulf Coast and Southwest Texas

Grade A	1.50
Grade B	1.25
Luling (Magnolia)	1.10
Laredo (Magnolia Petroleum Co.)	.85
Rockdale-Minerva (Milam County)	1.25
Calliham (Live Oak-McMullen)	1.65
Webb, Jim Hogg, Zapata	1.15
*High Island	1.20
Sour Lake (36 gravity)	1.79
Boling deep sand	1.50
Piedras Pintas	1.40

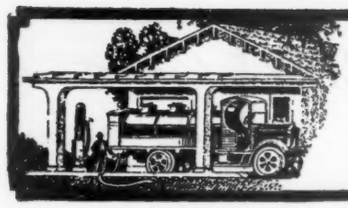
*Posted by Sun Oil Co.

Somerset crude, posted by Grayburg Oil Co. follows same grades and prices as North and East Central Texas crudes.

Eastern States

Penna Grade Oil in New York Transit Lines	3.90
Bradford District Oil in National Transit Lines	3.90
Penna Grade Oil in National Transit Lines	3.80
Penna Grade Oil in Southwest Pa. Pipe Lines	3.80
Penna Grade Oil in Eureka Pipe Line Lines	3.75
Penna Grade Oil in Buckeye Pipe Line Lines	3.65
Cabell Grade Oil in Eureka Pipe Line Lines	2.20
Corning Grade Oil in Buckeye Pipe Line Lines	2.25
Somerset Medium Oil in Cumberland Pipe Line Lines	2.30
Somerset Light Oil in Cumberland Pipe Line Lines	2.45
Ragland Grade Oil in Cumberland Pipe Line Lines	1.15
Gaines	2.95
Keister (Butler County)	2.45
Lima	2.23
Wooster	2.25
Illinois	2.12
Indiana	2.00
Princeton	2.12
Plymouth	1.65
Waterloo	1.10
Oil Springs, Canada	2.70
Petrolia, Canada	2.63
*Western Kentucky, 36° and above	2.05
*Western Kentucky, 35° to 35.9°	1.95
Western Kentucky, 32.9 and below	1.85

(Continued on Page 126)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, Feb. 23

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
Chicago Dist.—				
†Less than 100 gals.	17.0	19.0	...	12.0

Tank wagon prices on April 19, 1922: g. up 1½c; May 8, g. up 1c; June 27, g. and k. up 1c; July 19, g. down 2c, k. down 1c; Oct. 10, g. down 2c; Oct. 21, g. down 1c; Feb. 5, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c; Dec. 20, g. up 2c; Jan. 12, 1924, g. up 2c, k. up 1c; Feb. 5, g. up 2c, k. 1c; July 18, g. down 1c; July 30, g. and k. down 1c; Sept. 12, g. down 2c; Jan. 23, 1925, g. up 1c; Jan. 26, g. up 1c; Jan. 31, g. up 1c; Feb. 12, g. up 2c, k. up 1c; April 19, g. down 1c; July 14, g. up 1c; Aug. 25, g. down 2c, k. down 1c; Sept. 1, g. down 1c; Feb. 4, 1926, g. up 1c; k. up 1c.

Decatur, Ill.	17.2	19.2	...	12.5
East St. Louis	16.1	18.35	...	11.6
Joliet	17.4	19.4	...	12.7
Peoria	17.2	19.2	...	12.7
Quincy	17.2	19.2	...	12.3
Davenport, Ia.	19.5	21.5	2.0	12.9
Des Moines	19.5	21.5	2.0	12.9
Keokuk	19.5	21.5	2.0	12.9
Sioux City	19.0	21.0	2.0	12.5
Duluth, Minn.	20.5	22.5	2.0	13.6
Minneapolis	20.2	22.2	2.0	13.6
La Crosse, Wis.	20.2	22.2	2.0	13.1
Milwaukee	20.1	21.1	2.0	12.3
Madison	19.3	21.3	2.0	12.5
Detroit, Mich.	19.8	21.8	2.0	13.2
Grand Rapids	19.7	21.7	2.0	13.1
Saginaw	19.9	21.9	2.0	13.3
Evansville, Ind.	20.0	22.0	3.0	12.5
Fort Wayne	20.4	22.4	3.0	12.9
Indianapolis	20.2	22.2	3.0	12.7
South Bend	20.4	22.4	3.0	12.9
Fargo, N. D.	20.9	22.9	1.0	15.6
Huron, S. D.	19.0	21.0	3.0	14.1
Sioux Falls	18.0	20.0	3.0	13.6
*K. C., Mo.	19.9	21.9	3.0	11.3
*Springfield	19.8	21.8	3.0	12.2
*St. Louis	18.6	20.9	2.5	12.0
*St. Joseph	19.0	21.0	2.5	11.9
Wichita, Kan.	18.3	20.3	2.0	11.8
Bartlesville, Ok.	17 4	19 4	3 0	10.9

*State tax is 2c. Remainder is city tax.
†Quantity price on more than 100 gallons, 16.0.

The following monthly rebate system is effective on tank wagon schedules throughout the territory of Standard Oil Co. of Indiana: Over 750 gallons, ½c; over 2,000 gallons, ¾ cent; over 3,000 gallons, 1 cent; over 6,000 gallons, 1½ cents; over 10,000 gallons, 2 cents. If quantity bought during the year is equal to 12 times the monthly agreed purchases the discount will be paid or credited on the entire quantity less monthly payments. Service station customers will receive discount of 1 cent a gallon on purchases amounting to 200 gallons a month or 2,400 gallons a year; and 2 cents a gallon on 600 gallons a month or 7,200 gallons a year.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
Newark, N. J.	16 0	18 0	...	15 0
Atlantic City	16.0	....	...	15.0
Annapolis, Md.	18.0	....	...	15 0
Baltimore	18 0	21 0	2 0	15 0
Cumberland	18.0	21.0	2.0	15.0
Washington	18 0	21.0	2 0	15.0
Norfolk, Va.	20.0	23.0	3.0	15.0
Petersburg	20.0	....	3.0	15.0
Danville	20.0	....	3.0	15.0
Richmond	20.0	23.0	3.0	15.0
Roanoke	20.0	23.0	3.0	15.0
Keyser, W. Va.	20.0	....	3.5	15.0
Charleston	20.0	23.0	3.5	15.0
Parkersburg	20.0	23.0	3.5	15.0
Wheeling	20.0	23.0	3.5	15.0
Charlotte, N. C.	21.0	24.0	4.0	15.0
Hickory	21.0	....	4.0	15.0
Mt. Airy	21.0	....	4.0	15.0
Salisbury	21.0	....	4.0	15.0
Charleston, S.C.	22.0	25.0	5.0	15.0
Columbia	22.0	25.0	5.0	15.0

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
*Pittsburgh, Pa.	17.	22.0	...	16.0
*Philadelphia	17.0	22.0	...	16.0
*Scranton	17.0	22.0	...	16.0
*Allentown	17.0	22.0	...	16.0
Altoona	17.0	22.0	...	16.0
*Erie	17.0	22.0	...	16.0
Dover, Del.	19.0	22.0	2.0	16.0
Wilmington	19 0	22.0	2.0	16 0
Spring'fd, Mass.	18 0	20.0	...	16.0
Worcester	18 0	20.0	...	16.0
Boston	18.0	21.0	...	16 0
Providence, R.I.	19 0	22.0	1 0	16 0
Hartford, Conn.	20.0	23.0	2 0	15 0
New Haven	20.0	23.0	2 0	16.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
Atlanta, Ga.	23.0	26.0	3.5	17.0
Augusta	23.0	26.0	3.5	16.5
Macon	23.0	26.0	3.5	15.5
Savannah	18.0	21.0	3.5	16.0
Birm'gham, Ala	20.0	23.0	2.0	16.5
Mobile	19.0	22.0	2.0	14.0
*Montgomery	21.0	24.0	3.0	17.5
Clarksdale, Miss	20.0	23.0	3.0	14.0
Jackson	20.0	23.0	3.0	13.0
Natchez	19.5	22.5	3.0	13.5
Vicksburg	19.5	22.5	3.0	13.5
Jack'ville, Fla.	21.0	24.0	4.0	15.0
Miami	23.0	26.0	4.0	16.5
Pensacola	21.0	24.0	4.0	15.5
Tampa	21.0	24.0	4.0	15.0
Covington	23.0	26.0	5.0	16.0
Lexington, Ky.	21.0	24.0	5.0	16.0
Louisville	23.0	26.0	5.0	14.0

*In addition to the State tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and ½ cents on kerosene.

SOUTHWESTERN DISTRICT

***Magnolia Petroleum Co.**

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
Dallas, Tex.	15.0	19.0	1.0	12.0
Fort Worth	14.0	16.0	1.0	11.0
Houston	16.0	19.0	1.0	12.0
San Antonio	15.0	16.0	1.0	11.0
El Paso	18.0	19.0	1.0	13.0
Texarkana	17.0	20.0	1.0	13.0
Muskogee, Ok.	20.0	23.0	3.0	10.0
Oklahoma City	20.0	23.0	3.0	12.0
Tulsa	18.0	19.0	3.0	12.0
Little Rock	19.0	22.0	4.0	14.5
Ft. Smith, Ark.	19.0	22.0	4.0	14.5

*The following is the schedule of discounts on gasoline adopted by the Magnolia Petroleum Co. in Texas sales and the discounts are graded according to gallonage: Over 750 gallons a month, ½ cent; over 2,000 gallons, ¾ cent; over 3,000 gallons, 1 cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1¼ cents; over 400 gallons, 1½ cents; over 500 gallons, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases as in the tank wagon discounts.

OHIO

Standard Oil Co.(Ohio)

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
All Ohio points	21.0	23.0	2.0	14.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
Casper, Wyo.	20.5	22.5	2.5	14.0
Cheyenne	21.5	23.5	2.5	15.5
Albuquerque, N. Mex.	24.5	27.5	3.0	17.5
Salt Lake, Utah	23.5	25.5	3.5	18.0
Denver, Colo.	20.0	22.0	2.0	15.5
Pueblo	19.0	21.0	2.0	15.5
Butte, Mont.	22.0	22.0	2.0	17.0
Helena	24.0	26.0	2.0	18.0
Boise, Idaho	25.0	27.0	3.0	20.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
Albany, N. Y.	18.0	....	...	16.0
*New York	18.0	....	...	16.0
Buffalo	16.0	....	...	16.0
Rochester	16.0	....	...	16.0
Syracuse	17.0	....	...	16.0
Boston, Mass.	18.0	....	...	....
Providence, R.I.	19.0	....	1.0	....
Augusta, Me.	21.0	....	3.0	16.0
Manchester, N. H.	20.0	....	2.0	16.0
Burlington, Vt.	20.0	....	2.0	16.0

*Price in steel barrels.
Note: Standard Oil Co. of New York does not generally quote service station price in its territory. In most cases the service station price is 2 or 3 cents higher than tank wagon price.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
*New Orleans	17.5	20.5	3.0	13.5
Alexandria	17.0	20.0	2.0	14.5
Baton Rouge	16.0	19.0	2.0	13.0
LaFayette	17.0	20.0	2.0	14.0
Lake Charles	17.5	20.5	2.0	14.5
Shreveport, La.	16.0	19.0	2.0	13.5
Memphis, Tenn.	17.5	20.5	3.0	15.5
Chattanooga	18.0	21.0	3.0	16.0
Knoxville	19.0	22.0	3.0	16.5
Nashville	18.0	21.0	3.0	16.0
Bristol	19.5	22.5	3.0	16.0
Little Rock, Ark	19.0	22.0	4.0	14.5

*Tax of 3 cents includes city tax of 1 cent.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
San Francisco	16.0	20.0	2.0	15.5
Los Angeles	14.5	18.5	2.0	15.5
Fresno	16.5	20.5	2.0	17.5
Reno, Nev.	21.5	25.5	4.0	19.0
Portland, Ore.	17.0	21.0	3.0	16.5
Seattle, Wash.	16.0	20.0	2.0	16.5
Spokane	20.0	24.0	2.0	20.5
Tacoma	16.0	20.0	2.0	16.5
Phoenix, Ariz	23.0	26.0	3.0	21.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank Wagon	Service station	Incids tax of	Tank wagon
Omaha	18.25	20.25	2.0	12.5
Crawford	20.0	....	2.0	13.25
McCook	20.75	22.75	2.0	14.0
Norfolk	19.75	21.75	2.0	13.0
North Platte	20.75	22.75	2.0	13.75
Scottsbluff	20.25	22.25	2.0	13.25

TANK WAGON PRICE CHANGES

February 12.—Atlantic Refining Co. advanced gasoline 1 cent in New Eng'and in addition to changes noted in last week's issue of The Oil and Gas Journal.

February 21.—Standard Oil Co. of Kentucky advanced tank wagon and service station prices of gasoline 2 cents in Kentucky to cover an increase of 2 cents in the State gasoline tax effective Sunday.

February 23.—Standard Oil Co. of New Jersey advanced tank wagon and service station prices of gasoline 1 cent in Virginia, North Carolina and South Carolina, and a half-cent in West Virginia.

CRUDE PRICE CHANGES

Effective February 1, Texhoma Oil & Refining Co., posted a new price schedule for Wichita Falls, Tex., district crude, including only 14 grades from "below 32" to "44 and above." The prices are shown in the accompanying price table.

CRUDE OIL PRICES

(Continued from Page 125)

Cumberland, Barren and Monroe Counties (Kentucky), (Paragon Development Co.)	2.45
*Prices for Warren, Allen, Hancock, Simpson and Ohio Counties by Indian Refining Co.	
Mexican Crude	
*Tuxpam light (f.o.b. Mex. ports)	1.35
‡Panuco heavy (f.o.b. Mex. ports)	1.15
Tuxpam (New York)	2.05
Panuco (New York)	1.70

*Plus 30.33c tax. ‡16.93c tax.

Depletion Amended to 27½ Per Cent Is Satisfactory On Oil

By Charles E. Kern
New York Bureau, The Oil and Gas Journal, 30 Church St., New York

WASHINGTON, D. C., Feb. 20.—The conferees on the revenue bill have agreed to allow 27½ per cent for depletion in the case of oil and gas wells. The oil and gas industry asked for an allowance of 35 per cent, the Senate Committee on Finance recommended 25 per cent, the Senate amended the bill to make the allowance 30 per cent and the conference compromised on 27½ per cent.

The industry may well feel gratified over this outcome of the fight led by Senator Couzens of Michigan against any allowance for depletion. The Senate was convinced of the justice of the claims for depletion and the attacks by Senator Couzens had an effect on many senators exactly opposite to that intended. They became convinced he was not making a fair fight and was using the oil and gas section of the revenue bill to further his ends.

As agreed to by the conferees, the oil and gas section is greatly simplified and its clear language will make less likely any uncertain interpretation by the Treasury Department. As agreed to this provision is found in Section 204, subdivision C, paragraph 2, and is in the following words:

"In the case of oil and gas wells the allowance for depletion shall be 27½ per centum of the gross income from the property during the taxable year. Such allowance shall not exceed 50 per centum of the net income of the taxpayer (computed without allowance for depletion) from the property, except that in no case shall the

(Continued on Page 134)

CALIFORNIA PRICES

Gravity	Long Beach	Richfield Huntington Beach Brea-Olinda	Rosecrans Dom'gues	Torrance Inglew'd	Whittier La Habra Montebello	Coyote	Santa Fe	Kern River Newhall McKittr'k	Midway-Sunset Elk Hills	Lost Hills Bairdige	Coalinga	Santa Maria Wheeler Ridge	Santa Maria Ventura Salt Lake
14°	$ .85	$ .85	....	$ .85	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .75	$ .85
15°	.87	.87	....	.87	.85	.85	....	.75	.75	.75	.75	.76	.85
16°	.90	.90	....	.90	.85	.85	....	.75	.75	.75	.75	.75	.85
17°	.94	.94	....	.94	.85	.85	....	.75	.75	.75	.75	.75	.85
18°	.98	.98	....	.98	.85	.85	....	.75	.75	.75	.75	.75	.85
19°	1.02	10.2	....	1.02	.85	.85	....	.75	.75	.75	.75	.75	.85
20°	1.06	1.06	....	1.06	.87	.88	....	....	.79	.79	.79	.78	.89
21°	1.10	1.10	....	1.10	.89	.94	....	....	.84	.84	.84	.81	.93
22°	1.14	1.14	....	1.14	.91	1.00	....	....	.93	.92	.89	.84	.98
23°	1.18	1.18	....	1.18	.94	1.06	....	....	1.00	1.00	.94	.87	1.03
24°	1.22	1.22	....	1.22	.97	1.12	.97	....	1.08	1.08	.99	.90	1.08
25°	1.26	1.26	....	1.26	1.00	1.18	1.05	....	1.16	1.16	1.04	.93	1.13
26°	1.30	1.30	$1.30	1.30	1.03	1.24	1.13	....	1.24	1.24	1.09	.96	1.18
27°	1.34	1.34	1.34	1.34	1.06	1.30	1.21	....	1.32	1.32	1.14	.99	1.23
28°	1.38	1.38	1.38	1.38	1.09	1.36	1.28	....	1.40	1.40	1.19	....	1.28
29°	1.42	1.42	1.42	....	1.12	1.42	1.34	....	1.48	1.48	1.24	....	1.33
30°	1.46	1.46	1.46	....	1.15	1.48	1.40	....	1.56	1.56	1.29	....	1.38
31°	1.52	....	1.52	....	....	....	1.46	....	1.64	1.64	1.34	....	1.43
32°	....	....	1.58	....	....	....	1.52	....	1.72	1.72	1.39	....	1.47
33°	....	....	1.64	....	....	....	1.60	....	1.80	1.80	1.44	....	1.51
34°	....	....	1.70	....	....	....	1.68	....	....	1.88	1.49	....	1.55
35°	....	....	1.76	....	....	....	1.76	....	....	....	1.54	....	1.60
36°	....	....	1.84	....	....	....	1.84	....	....	....	....	....	....
37°	....	....	1.92	....	....	....	1.92	....	....	....	....	....	....
38°	....	....	2.00	....	....	....	2.00	....	....	....	....	....	....
39°	....	....	2.08	....	....	....	....	....	....	....	....	....	....
40°	....	....	2.16	....	....	....	....	....	....	....	....	....	....
41°	....	....	2.24	....	....	....	....	....	....	....	....	....	....
42°	....	....	2.32	....	....	....	....	....	....	....	....	....	....

Brief Items for Plant Operators

ARMOUR INSTITUTE DEVELOPS METHOD FOR TESTING GASOLINE

The Automotive Laboratories of the Armour Institute of Technology, Chicago, is perfecting equipment for determining the knocking qualities of all types of motor fuel. The method used is explained by Daniel Roesch, associate professor of gas engineering, in the current issue of The Armour Engineer.

After explaining briefly the causes of detonation in combustion engines, Professor Roesch gives a resume of the Ricardo, Midgley and Bureau of Standards methods of testing for anti-knock characteristics in gasoline. The latter method was explained in the November 26 issue of The Oil and Gas Journal.

Professor Roesch explains that while all the modifying factors entering into the Armour method of testing have not been fully investigated, much valuable comparative data has been obtained.

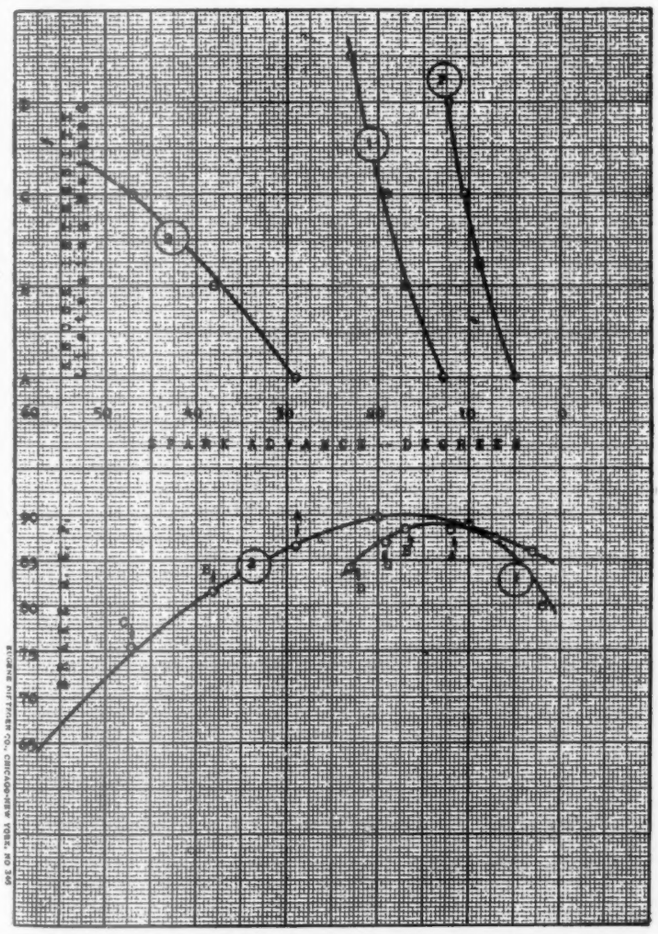


Figure 1. Representative data for a paraffin gasoline at (P), a commercial gasoline at (1), and a 60-40 mixture by volume of (1) and a benzol at (2).

Means are provided for determining the torque, speed, fuel consumption, and spark advance while operating at wide open throttle and a constant speed of, say, 1,000 r. p. m. Optional runs are made at partly closed throttle and at other speeds. Test runs are usually made with the mixture set for approximately maximum power with slightly leaner mixtures as related to this adjustment. This corresponds to about 90 per cent of the theoretical air requirements.

Test runs are made at various spark advances from dead center and advancing step by step until the maximum permissible knock occurs. Observations of the data given above are recorded and the carburetor air, oil, jacket water, etc., are maintained constant for all runs. The knock intensity is determined by the listening method using the following code.

Designation	Knock Intensity
A	First Indication
B	Slight
C	Medium
D	Sharp
E	Severe

The results are plotted in two ways: First, with knock intensity vs. spark advance, and second, brake m. e. p. corrected vs. spark advance.

Representative data are shown in Figure 1 for a paraffin gasoline at (P). It is believed that the olefins, naphthenes, aromatics, alcohols, etc., will be disposed to the left of this curve in the order given although not all of these fuels have been tested. A commercial gasoline is shown at (1) and a 60-40 mixture by volume of (1) and a benzol at (2). The lower curves of this figure show the power characteristics as well as the knock intensities of the commercial gasoline and the 60-40 mixture of this gasoline and a benzol.

There seems to be no difficulty in comparing the anti-knock qualities in this way since the best anti-knock qualities are in the fuels having lines farther to the left of the zero degree spark advance. It is interesting to note the long sloping line of the heavier concentrations of the knock suppressor when operating with spark advances of 60 or more degrees early. It is believed that the disposition of the arrows A, B, C and D as brake m. e. p. related to the peak of the curves gives an insight into the fuel performance.

The relative knocking intensities have been given arbitrary numerical values by integrating the area to the right of the knock intensity curve and the dead center spark advance line. This area divided by the total area between the lines A to D, and dead center to +60 degrees advance gives an anti-knock number or value for comparative purposes*. Computations of these values will be as follows for the fuels shown on the curve sheets.

Fuel	"P & R" Index
P	16
1	29
2	71
G	20
G+2 cc.	28
G+4	43
G+6	68
G+8	98

The numbers, 2, 4, 6 and 8, giving the amounts of tetraethyl lead used, refer to the cubic centimeters per gallon.

*This value is designated as the "P & R" Index. The method of establishing the index was first suggested by Mr. E. B. Phillips, Chief Chemist, Sinclair Refining Co., after study of curve sheets showing data obtained from Professor Roesch's Audibility Anti-Knock Tests.

NAMED SUPERINTENDENT

A. H. Mayor, formerly general superintendent of the Waverly Oil Works, of Pittsburgh, Pa., has been appointed superintendent of the Texas Pacific Coal & Oil Co.'s newly acquired refinery at Fort Worth, Tex. The latter plant will start operating in the near future.

ROXANA ANNOUNCES ALL PLANS TENTATIVE

All plans in connection with the proposal to build a refinery near Chicago are tentative at this time, according to an official announcement of the Roxana Petroleum Corp. The plans, it was stated, are being handled with all possible facility and it will soon be definitely known whether the proposed enlargement of the company's refining facilities is to be carried out. The plant if built will manufacture products for the company's Canadian trade and for the trade territory north and east of Chicago.

The company's official announcement follows:

"The Roxana Petroleum Corp. has secured options to purchase approximately 450 acres of land lying in the cities of East Chicago and Hammond, Ind., for a proposed refinery site.

"The cities of East Chicago and Hammond, Ind., have assured the company that they would take the necessary legal steps to assure the company the right of way for crude lines from their producing fields into the plant and for loading lines from the proposed refinery site to a dock site on the Indiana Harbor Canal, an option on which has also been secured.

"The company's engineers began February 15 to locate the pipe line proposed to be constructed from East Chicago to Wood River, Ill., the present terminus of the company's 10-inch line from Oklahoma—the capacity of which has recently been increased. It is the company's intention to purchase this site and construct thereon a modern refinery when, and if, several matters, as yet not completed, are completed to the company's satisfaction, one of which is the right of way between the plant and deep water connection to the Indiana Harbor on Lake Michigan. The plant, when constructed, will be located partly within both the cities of East Chicago and Hammond, Ind.

AMONG THE TECHNICAL MEN

P. L. Drake, who last month became superintendent of the West Tulsa, Okla., refinery of The Texas Co., has been connected with that company for 13 years. His entire refinery experience was obtained at the several plants of the company.

P. L. Drake

Mr. Drake first became interested in the production end of the oil business. Starting in the Pennsylvania fields as a tool dresser in 1908 Mr. Drake from 1910 to 1912 was a driller in the Bradford Field.

In 1912 he entered the employ of The Texas Co. at its Port Arthur, Tex., refinery. He was first employed in the barreling house. Later he was transferred to the stills, becoming helper, and later had charge of a battery as a stillman. In 1916 he was made night foreman of the plant.

In 1918 the company transferred him to the Norfolk, Va., terminal as assistant superintendent. He served in this capacity until 1921 when he was made assistant superintendent of the refinery of which he is now superintendent. He left Tulsa in 1923 to become superintendent of the Dallas, Tex., refinery of the company. He remained in that position until the first of this year when he succeeded W. K. Holmes, who was made first assistant superintendent of the Port Arthur, Tex., refinery.

Oil Securities Trend Again Upward

Chesebrough Manufacturing Declares an Extra Dividend. Reports of Pipe Line Companies, Sun Oil and White Eagle

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, 30 Church St., New York

NEW YORK, Feb. 20.—The Chesebrough Manufacturing Co. has declared an extra dividend of 25 cents a share and a quarterly dividend of 75 cents, both payable March 31 to stockholders of record March 10. This places the stock on a regular annual basis of $3 a share. In the preceding quarter an extra dividend of 62½ cents a share was declared in addition to a regular quarterly dividend of 62½ cents a share.

Cumberland Pipe Line

The Cumberland Pipe Line Co. reports for the year ended December 31, 1925, net profit of $367,551, equivalent to $12.25 a share earned on the $3,000,000 capital stock, compared with $439,446, or $14.64 a share, in 1924.

The income account for 1925 compares with 1924 as follows:

	1925	1924
Net profit	$367,551	$439,446
Dividends	360,000	360,000
Surplus	$7,551	$79,446

The balance sheet of the Cumberland Pipe Line Co. as of December 31, 1925, compares with 1924 as follows:

Assets	1925	1924
Plant	$4,659,708	$4,626,729
Other investments	2,660,470	2,885,637
Accounts receivable	167,082	165,721
Cash	310,965	63,609
Total	$7,798,225	$7,741,696
Liabilities		
Capital stock	$3,000,000	$3,000,000
Depreciation	2,791,495	2,346,613
Accounts payable	456,545	145,716
Oil purchase and sales contract	.....	914,963
Surplus	1,550,185	1,334,404
Total	$7,798,225	$7,741,696

New York Transit

The New York Transit Co. reports for the year ended December 31, 1925, net income of $243,792 after taxes and depreciation, equivalent to $4.87 a share earned on $5,000,000 stock, compared with $186,418, or $3.72 a share, in 1924.

The income account for 1925 compares with 1924 as follows:

	1925	1924
Net income	$243,792	$186,418
Dividends	150,000	100,000
Surplus	$93,792	$86,418
P. and L. surplus	$1,350,006	$1,306,214

The balance sheet of the New York Transit Co. as of December 31, 1925, compares with that of the preceding year as follows:

Assets	1925	1924
Plant	$6,972,229	$6,942,560
Materials and supplies	72,772	103,333
Cash, accts., rec., etc.	2,486,920	2,381,017
Total	$9,531,921	$9,426,910
Liabilities		
Capital stock	$5,000,000	$5,000,000
*Accounts payable	838,819	903,609
Depreciation reserve	2,343,096	2,217,087
Surplus	1,350,006	1,306,214
Total	$9,531,921	$9,426,910

*Includes reserve for taxes and insurance.

Northern Pipe Line

The report of the Northern Pipe Line Co. for the year ended December 31, 1925, shows net income of $310,748 after depreciation and taxes, equivalent to $7.76 a share earned on $4,000,000 capital stock, compared with $214,205 or $5.35 a share, in 1924.

The statement for 1925 compares with 1924 as follows:

	1925	1924
Net income	$310,748	$214,205
Dividends	240,000	240,000
Surplus	$70,748	*$25,795

*Deficit.

The balance sheet of the Northern Pipe Line Co. as of December 31, 1925, compares as follows:

Assets	1925	1924
Plant	$3,015,664	$2,984,396
Materials and supplies	28,973	39,086
Cash, etc.	3,351,706	3,212,187
Total	$6,396,343	$6,235,669
Liabilities		
Capital stock	$4,000,000	$4,000,000
*Accounts payable	488,067	458,455
Depreciation reserve	1,653,410	1,568,096
Surplus	254,866	209,118
Total	$6,396,343	$6,235,669

*Includes taxes and fire insurance reserves.

Southwest Pa. Pipe Lines

The report of the Southwest Pennsylvania Pipe Lines Co. for the year ended December 31, 1925, shows profit of $200,906 after depreciation, equivalent to $5.74 a share earned on $3,500,000 capital stock, compared with $91,199, or $2.60 a share, in 1924.

The balance sheet of the Southwest Pennsylvania Pipe Lines as of December 31, 1925, compares with 1924 as follows:

Assets	1925	1924
Plant	$4,205,417	$4,222,912
Other investments	1,500,766	1,338,391
Accounts receivable	394,231	168,942
Oil purchase and sale contract	.....	16,696
Cash	86,104	41,772
Total	$6,186,518	$5,788,713
Liabilities		
Capital stock	$3,500,000	$3,500,000
Depreciation	2,066,738	1,599,196
Accounts payable	52,924	81,940
P. and L. surplus	566,856	607,577
Total	$6,186,518	$5,788,713

Sun Oil

The Sun Oil Co. reports for the year ended December 31, 1925, net income of $3,602,128 after interest, depreciation, depletion and estimated Federal taxes.

The income account of the Sun Oil Co. for the year ended December 31, 1925, follows.

Gross income	$48,697,402
Expenses, etc.	42,751,625
Operating income	$5,945,777
Other income	775,646
Total income	$6,721,423
Interest	675,821
Depreciation and depletion	2,099,438
Estimate Federal taxes	344,035
Net income	$3,602,128
Dividends	836,996
Surplus	$2,765,132

White Eagle Oil

The White Eagle Oil & Refining Co. reports for the year ended December 31, 1925, net income of $1,466,860 after charges, Federal taxes, depreciation, depletion, etc., equivalent to $2.99 a share earned on 490,000 shares of no par value capital stock. This compares with $1,029,385, or $2.23 a share, on 460,000 shares in 1924.

The income account for 1925 compares as follows:

	1925	1924
Sales	$16,483,518	$14,335,001
Costs and expenses	13,343,372	11,728,501
Operating profit	$3,140,146	$2,606,500
Other deductions	388,532	344,029
Federal taxes	164,000	114,000
Deprec. and deple.	1,120,754	1,119,086
Net income	$1,466,860	$1,029,385
Dividends	965,000	920,000
Surplus	$501,860	$109,385

The condensed balance sheet of the White Eagle Oil & Refining Co. as of December 31, 1925, compares with 1924 as follows:

Assets	1925	1924
Ref., tank cars, etc.	$20,978,139	$19,709,078
Cash	1,379,455	1,405,804
Notes and accts. rec.	1,197,947	976,543
Inventories	2,817,183	2,273,251
Investments	208,572	178,258
Deferred charges	185,265	202,263
Total	$26,766,561	$24,739,197
Liabilities		
Accts. and notes pay.	$ 1,004,449	$ 807,486
Other accounts	80,628	85,869
Def. notes payable	172,417	265,719
Gold notes	2,400,000	2,800,000
Deprec and deple.	8,838,597	7,615,824
Other reserves	185,262	185,917
Def. credits	6,553	.....
Capital and surplus	*14,085,208	12,971,829
Total	$26,766,561	$24,739,197

*Represented by 490,000 no par value shares.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot. Feb. 20	Clos. Quot. Feb. 15	1926 High	1926 Low	1925 High	1925 Low	1924 High	1924 Low
American Republics	..	*68	*70	73	69	79¾	48	48	25
Associated Oil	25	58¾	58½	59⅛	44⅝	47½	32	34⅝	27⅝
Atlantic Ref. com.	100	106	104⅛	110	104⅛	117½	95⅛	140½	78½
Barnsdall "A"	25	29¾	30½	33½	29⅝	33½	18⅝	29½	14
California Pet., com.	25	35	35	38⅛	30⅝	34⅝	23⅞	29	19⅞
General Petroleum	25	55½	54⅞	59½	54¾	59	42	45	38⅝
Houston Oil	100	65¾	66½	72	64	85	59	82½	61
Independent Oil & Gas	..	28¼	28¼	34	24½	41¾	13½	16¼	5⅝
Indian Refining	10	12½	12¼	13⅜	9½	14¼	5½	7	8⅜
Louisiana Oil	10	16⅝	16½	19⅛	16	23⅝	13⅜	..	..
Maracaibo	..	24⅜	24	28⅞	24	35½	20⅜	37¼	25⅜
Marland	..	58½	57⅜	60¼	55	60⅛	32⅝	42	29
Mexican Seaboard	..	9¼	9⅝	12⅛	9¼	22½	9	25⅝	14⅛
Mid-Continent Pet.	..	34⅛	34	41	33	38	25⅜	40¼	22⅝
National Supply	50	60½	59½	61¼	55½	71	54⅜	72½	54
Oil Well Supply	25	*34	33¼	36	31	38	33⅜	..	..
Pacific Oil	..	82¼	82	83⅛	74¼	78½	51⅛	58¼	45
Pan. Amer. P. & T., com.	50	65¼	65½	76½	65¼	83⅞	59½	68	44½
Pan. Amer., Western B.	..	41	41½	46	40⅛	49⅜	37¼	..	..
Phillips Pet.	..	47	46½	49⅛	42⅜	47⅛	36¼	42¼	28½
Producers & Refiners	50	*14	14⅜	17½	14¼	32⅝	12½	43½	29¾
Pure ,Oil, com.	..	28⅝	29	31	28⅝	33⅜	25⅛	30¼	20
Royal Dutch, N. Y., sh.	13.40	53⅞	53¼	57⅜	52⅝	57⅜	48¼	59½	40⅜
Shell Transport	10	*44	*44¼	48	44	49	39⅜	42	33
Shell Union, com.	..	26¼	26⅜	28⅛	25⅝	28⅜	21⅜	22½	15⅜
Simms Pet.	10	26	26½	28⅝	23⅜	28½	17⅝	24	10⅜
Sinclair Consolidated, com.	..	24⅝	23¼	24½	20½	24⅞	17	17½	15
Skelly Oil	25	31	30⅝	32⅞	29½	32½	21⅜	29	17⅛
Standard of California	25	57⅞	58⅜	62¼	55⅜	67¼	51½	68½	55½
Standard of New Jersey, com.	25	44⅛	44	46⅝	43⅛	47½	38⅜	41½	33
Sun Oil Co.	..	*39	*38½	41⅝	36½	43⅜	38⅛	..	..
The Texas Co.	25	52	52⅜	54⅞	50⅝	55	42⅝	45⅝	37⅝
Texas Pacific Coal & Oil	10	15⅝	16⅛	19½	15⅝	23⅜	11	15¼	8¼
Tide Water Oil (new)	..	37⅝	35⅞	39⅛	34¼	‡152	122	151	116¼
Transcontinental	..	4	4	4⅜	4	5⅞	3½	6¼	3⅜
Union Oil of California	25	43½	40⅜	46	37¼	43⅜	33⅛	39	35½
Union Tank, com.	100	*89	*89	94	89	‡134	118	132⅜	94
White Eagle Oil & Ref.	..	28½	28	29⅜	26¼	31¾	25⅝	29⅜	23⅛
Standard Oils									
Anglo-American Oil	£1	*18	18	19¾	18	26¾	17½	18¾	14⅝
Borne Scrymser	100	239	*220	239	226	240	205	264	150
Buckeye Pipe Line	50	*57½	58	59½	55⅝	72	53½	85½	51
Chesebrough Mfg. Co.	25	72⅝	69	72⅜	63	74	48¼	52½	29¼
Continental	10	23⅜	23	25⅞	23¼	31⅛	21⅞	..	..
Crescent Pipe Line	25	*15½	*15½	16	15½	17½	10	20	11⅜
Cumberland Pipe Line	100	*135	*133½	137	132	156	128	148	108
Eureka Pipe Line	100	*60⅛	*58	63⅜	60	96	61¼	105	74
Galena Signal, com.	100	*30	*30	32½	28	68½	23½	69⅜	52½
Humble Oil & Refining Co.	25	91⅝	89⅜	99⅝	87⅜	99	42½	43⅜	36
Illinois Pipe Line	100	*137	134½	142	135	154½	124	161	123
Imperial Oil (Ltd.)	..	36	36	38⅜	35	39¼	27½	119	99
Indiana Pipe Line	50	*60	65	65	58	84	57⅛	100	66
International Pet. Co.	10	34	33	35½	32	35⅜	22⅛	24⅜	16⅞
National Transit Co.	12.50	18⅜	19½	20⅜	18	25½	16½	25⅞	20⅝
New York Transit	100	*42	*42	50	39	79	50	97	54½
Northern Pipe Line	100	*76	78½	80½	70⅝	88	67½	107½	72
Ohio Oil Co.	25	*64⅛	64⅜	67⅜	61⅓	75⅓	60	78½	53
Penn.-Mex. Fuel	25	*17½	*18	23	16⅓	44	19	35⅝	27
Prairie Oil & Gas	25	57½	56¼	60¼	55	65½	45⅞	269	193
Prairie Pipe Line	100	*125	124¾	127	123¼	129¾	105	111	100
Solar Refining Co.	100	204½	205	212	202	259	200	240	170
South Penn Oil	25	*44	175½	50	44½	‡197	139	176	117
Southwest Pa. Line	100	*52⅛	52½	54½	47½	84	50	89	68
Southern Pipe Line	100	63	62½	66⅛	61⅜	103	63	100	80½
Standard of Indiana	10	66½	65½	70½	65¼	70⅜	59½	69⅜	54½
Standard of Kansas	25	32	32	36½	32⅛	46	30¼	50⅛	32½
Standard of Kentucky	25	124	125½	134⅜	125⅛	137	114⅜	121⅜	101
Standard of Nebraska	100	247	248	254	239½	270	231	262	198
Standard of New York	25	35⅜	35⅜	37⅜	35	48⅝	40	48	37⅜
Standard of Ohio, com.	100	*344	347½	362	339½	369	338	337½	277
Swan & Finch, com.	25	*20	*19	21	20	27	12	28	20
Vacuum Oil	25	*103¼	103	109⅝	103½	109½	80½	83½	50½
Miscellaneous									
Gulf Oil Corp. of Pa.	25	*87⅜	88	93¾	86½	98¼	63½	67⅝	56

*Bid, no sales. ‡Old stock.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Feb. 20	58.23	Jan. 18	57.38	Dec. 14	56.89	
Feb. 15	57.51	Jan. 11	57.55	Dec. 7	57.99	
Feb. 8	58.96	Jan. 4	59.15	Nov. 30	56.93	
Feb. 1	58.51	Dec. 28	59.40	Nov. 23	56.49	
Jan. 25	57.96	Dec. 21	56.86	Nov. 16	57.31	

JOHN SEALY DIES

NEW YORK, Feb. 20.—John Sealy, oil man, banker and reputed to have been the largest land owner and the richest man in Texas, died in Paris, Thursday, according to cabled advice received by H. C. Folger, chairman of the board of directors of the Standard Oil Co. of New York.

Sealy went abroad with his private physician last autumn, following the announcement that the Standard Oil Co. of New York, would absorb the Magnolia Petroleum Co. of Texas, which Sealy founded and of which he was chairman of the board of directors. Mr. Sealy inherited considerable Texas property from his father. His fortune was estimated to be close to $100,000,000, with $15,000,000 in oil properties and nearly 1,000,000 acres of land.

BUYS GAS PRODUCTION

SHREVEPORT, La., Feb. 20.—The Southern Carbon Co. of Monroe, La., purchased from J. T. Austin, the M. C. Austin estate and J. B. Parker 3,000 acres of land in Ouachita Parish, Louisiana. The land is 10 miles north of Monroe and contains five gas wells with of production of approximately 30,000,000 feet per day. The price was not given, but is reported to be $250,000. The gas wells are seven years old, and their output will be piped to Monroe by the purchasing company.

SOME OF THE FACTORS AFFECTING WELL SPACING

(Continued from Page 22)

adhesion is the attraction or friction at the surface contact with sand particles, it is seen that both work toward the same end to oppose any force which tends to remove the oil from contact with itself or from the sand grains. Thus it can be seen that viscosity affects well spacing very materially. Heavy, viscous oils require a very close well spacing.

Capillarity

Capillarity is the action by which the surface of a liquid, where it is in contact with a solid is elevated or depressed. With reference to oil, capillarity is that property which causes it to rise in narrow spaces against the action of gravity. Furthermore the pressure of partings such as shale or other impervious material increases the effect of capillarity as each stratum will act as a basis for the operation of this force.

Of the oil retained in the sand after a well has reached economic exhaustion under usual methods of production, probably, the greater part that may be obtained by new methods of recovery is held by capillarity. Oil will not drain out naturally. Capillarity depends on the size of the pores, the finer the spaces the greater the capillary action. This force is ever present.

It has been demonstrated that in oil saturated sands with water as the invader that the water does not displace the oil in finer grained sands as readily as in the coarser sands. This is explained by the fact that the pores were wet with oil and that the smaller pores have no attraction for water. The larger pores of the coarser sand permit the water to pass through displacing only the oil in the center of the pores. It follows then that the relative surface tension and adhesion are the important factors in such cases.

The resistance offered by any uniform series of openings is proportional to the viscosity and adhesion of the liquid passing through them. In order that capillary movement may take place one of the liquids must be drawn over the surface of the pores. That is, the molecules of the solid which are not covered by the liquid attract molecules of the liquid from their previous position and the result is that the liquid moves over the surface of the pores. Once the walls of the pores are wet with the liquid, capillarity will act. This force tending to draw the liquid over the surfaces of the walls of the pores is adhesion. If adhesion draws a liquid over the surfaces of the pores that had previously been wet with a liquid of higher surface tension, capillarity will cause the liquid of lower surface tension to drive the liquid of higher surface tension out of the pores.

Adhesion

Adhesion is a molecular force by which bodies of matter are caused to stick together. When a liquid forms a thin film over the surface of a smooth solid, adhesion and surface tension tend to oppose each other, because adhesion tends to increase the area of the film, while surface tension tends to cause the film to contract and gather in drops. The force of surface tension of water is much greater than that of oil, hence the tendency for a film of water to spread out is resisted by a much greater force than is the case with a film of oil. On the other hand, when a liquid is in a tube or a long narrow pore, the forces of adhesion and surface tension do not act in direct opposition to each other. The forces of adhesion will tend to draw the liquid over the sides of the tube, but if the force of surface tension draws the whole surface an equal distance along the tube, the area of the surface will not be increased, provided that the tube is of a constant diameter. It is customary to calculate the force of capillarity in sands upon the basis of the surface tension.

The surface of sand grains are wetted with oil and a thin film still remains after the oil has been drained off. Even though this film is very thin the aggregate surface of the sand grains are very great and the oil film remaining is considerable.

Surface Tension

The surface tension in any liquid is due to the cohesive action of the particles composing the liquid. Hence at the surface of every liquid there is a force, surface tension, which acts inward and causes the liquid to act as if it were covered by an elastic skin.

The surface tension of petroleum from various sections of the United States has been determined. It was found that surface tension increases with the specific gravity. The presence of high boiling fractions and products of high viscosity tend to raise the surface tension of the lighter petroleum oils. Surface tension decreases as the temperature increases.

The surface tension of crude oils varies from 28 to 32 degrees per centimeter for crudes from 48 to 35 degrees Baume at a temperature of about 77 degrees Fahrenheit and this force decreases about 0.05 dynes per centimeter for each degree increase in temperature. This surface tension of 62 degrees Baume gasoline is about 25 dynes per centimeter.

In recent experiments it has been demonstrated that certain dissolved gases decrease the surface tension.

This factor has a material effect on the future recovery of oil. Even near wells that are economically exhausted, not only are the grains still coated with oil but the pores remain full of oil. This oil has been robbed of its lighter fractions and is now dead oil. The introduction of certain gases or substances soluble in this oil will tend to lower the viscosity and surface tension and thus lessen the force of capillarity so that it can be recovered by displacement. Hence it can be seen that it is essential that in new fields the gas must be conserved and made to do work not only in lifting the oil but in keeping the viscosity of the oil at its lowest point. In our present methods of development it takes the gas dissolved and occuluded in seven barrels of oil to produce one barrel of oil, thus leaving five or six barrels of dead oil in the sands.

If this natural force of dissolved and occluded gas is used to best advantage our recovery can be materially increased.

Isothermal Expansion

It has been demonstrated experimentally that a mixture of fluid and gas acts under isothermal conditions in lifting fluid by gas through tubing.

It is possible then by the proper design of inlet orifices in the perforations of the tubing opposite the producing sands to produce oil under conditions approaching isothermal expansion. This means an enormous saving of gas as the gas is made to work at almost its highest efficiency in lifting the oil. This will prolong the flowing life of the well and increase the ultimate recovery of oil.

Gas Oil Ratio

In our present method of flowing wells the gas is not made to do very much useful work in lifting oil to the surface. It is not uncommon to find flowing wells producing 4,000 feet of gas per barrel of oil. Under isothermal expansion this could be reduced to less than 300 feet of gas per barrel of oil.

In old fields where the gas has been exhausted it will be necessary to replace this gas with air, gas or other substances to revive the dead oil and propel it to the hole to secure additional recovery.

Conclusion

From the foregoing discussion it can be seen that subsurface conditions govern the extraction of oil and that well spacing should conform to these conditions.

Structural position, porosity, grain size and grain arrangement are conditions beyond our control and can not be changed. But their effect on production must be known to space the wells economically.

Gas pressure, hydrostatic pressure, viscosity, capillarity, adhesion, surface tension, dissolved and occluded gases, isothermal expansion and the gas oil ratio can be controlled to a certain extent. Very little is known about the effects of these factors but in the light of recent discoveries it has been shown that they are controlling factors in extraction and that their effects must be taken into consideration in the spacing of wells.

But until these factors are evaluated the present method of erratic spacing due to surface, property lines, prearranged plans for plants, camps, pipelines and surface equipment necessary in the successful operation of any property, will govern the spacing.

With the application of reasearch and new methods of recovery which will probably be attempted on the present 300,000 producing wells valuable information will be secured from which the future economic spacing of wells can be determined.

MERGERS EXPECTED TO HANDLE UNIT OPERATIONS

(Continued from Page 22)

yet results, from the viewpoint of oil production, have been only partly successful. Numerous small wells have been brought in. They have averaged around 300 bbls. daily, initial, and the producing sand has been found at depths of around 3,000 feet. These facts, coupled with the distance from markets, has not made the Panhandle a big paying proposition so far. Oil men are agreed that the Texas Panhandle is entirely a "play" for the big company or the well financed independent. The expense of drilling is entirely too heavy for the so-called little man. The area consists, too, of very large tracts of land in the main, there being comparatively small farms included in the prospective oil and gas producing territory.

Getting Into Line

Several recent developments, published more or less widely, point to the fact that plans are progressing rather rapidly for the formation of a large unit to handle a portion of the development of the Panhandle.

Securities of several oil companies traded in in the New York stock markets have been unusually active and strong, the buying being attributed directly to these plans. The companies referred to are comparatively large holders of Panhandle acreage.

Several of the large oil companies that had not until recently taken an interest in the Panhandle are now entering that territory.

Merger plans, however, are believed to concern principally small companies that have acreage but have not the desire to undertake actual development alone. Grouped together, they have a better chance of pushing development to a successful conclusion.

Public announcement regarding the matter is expected to be made within a few weeks, depending, of course, upon the outcome of negotiations.

Rush of companies to the Panhandle has been more pronounced of late. Already Prairie Oil & Gas, Gulf Oil, The Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Roxana Petroleum Corp., Marland Oil Co., Empire Gas & Fuel Co., Pure Oil Co., Phillips Petroleum Co. and other well-known concerns have taken over holdings and some have announced plans for drilling.

Without inferring that the companies to be named are or are not planning to go into the Panhandle merger directly or indirectly, a resume of some recent development may be of interest.

Prairie Oil & Gas

Prairie Oil & Gas can be called the leading holder of Panhandle acreage, not only through its interest in the Amarillo Oil Co., but also due to its taking over control a few years ago of the Producers & Refiners Corp., which has extensive holdings in Potter, Moore and Hutchinson Counties.

Phillips Petroleum Co. has oil and gas leases on approximately 45,000 acres in the Panhandle, and gasoline contracts on an additional 25,000 acres. The company has just made a contract for development of the Gibson Oil Co.'s holdings, comprising about 4,500 acres, on a profit-sharing basis. The Pulaski Oil Co., owned by Phillips Petroleum Co., is now carrying on four drilling operations in Hutchinson County. Phillips also has four other drilling operations in progress.

Texas Pacific Coal & Oil Co. has considerable acreage in the Panhandle, some of which is being drilled in conjunction with Prairie Oil & Gas Co.

American Refining Co., headquarters at Wichita Falls, Tex., has considerable Panhandle acreage, and is one of the most active operators there at present. South Hutchinson Oil Co. is drilling at least two wells in Hutchinson County. Panhandle Producing & Refining Co. has an interest in some 20,000 acres in the Panhandle, and has completed several producing wells, averaging about 300 bbls. daily each, initial.

Midwest Refining Co. of Denver, recently entered the Panhandle through a subsidiary, the Midwest Exploration Co., which is planning several drilling operations. Midwest Refining is a subsidiary of the Standard Oil Co. of Indiana.

The development of the Texas Panhandle is being further hastened by the development of transportation facilities. Within the past two months two small pipe lines were built from wells in Carson County to Amarillo, through which the Santa Fe Railroad passes. This railroad is still the chief outlet of the district. It is understood the Rock Island plans to extend a line into the Texas Panhandle district.

WESTERN REFINERS TO MEET NEXT WEEK

(Continued from Page 21)

For the year ending January 1, the Mid-Continent area furnished 633,837,918 gallons or 33.5 per cent of the 1,899,447,677 gallons which represented the increased production of 1925 over 1924. In actual shipments for the year the Mid-Continent's position was even more commanding. Of the 1925 increase of 1,653,456,184 gallons in gasoline shipments including exports, the Mid-Continent area furnished 37.7 per cent.

This dominant position in regard to gasoline production and shipments was obtained although the same area only increased its crude to stills 27.4 per cent. These data reflect the fact that refiners have made great progress in the efficient operation of their refineries. For the entire area the gasoline recovery increased from 40 per cent in 1924 to 43.1 per cent in 1925. This increase which includes the natural gasoline used by the refiners, was secured despite the fact that the refiners located in Arkansas and North Louisiana operated with crude of exceptionally low gravity.

These facts explain why to most refiners in the Mid-Continent area, the past year has been generally encouraging when compared to the three previous years. A still brighter year is in prospect for 1926, and the Fort Worth meeting for the discussion of timely problems it is believed should do much in making the looming prosperity a reality.

AUTOMATIC CONTROL FOR ROTARY WELLS

(Continued from Page 30)

As the well is drilled deeper and successive joints of drill pipe are added it is necessary to have a means of changing the gear ratio between the differential and the drill pipe in order to compensate for the increased load, or suspended portion of the pipe. With the devices in use now in California, it has been found that a seven-speed drawworks meets every requirement in drilling to a depth of 4,500 feet, using 6-inch drill pipe and would no doubt, give the necessary gear ratios at 6,000 feet with 4-inch drill pipe.

Device Easily Installed

In designing the apparatus for practical use in the oil fields, all complicated apparatus have been eliminated and the device, in a single unit, mounted on its own frame is easily installed on any standard drawworks since the device is so constructed that it sets between the engine and the line shaft on the engine sills and is connected to the line shaft and the rotary table by standard chains

and sprockets, available in any supply store.

The St. Helens Petroleum Co. of California connected a Bristol pressure recording chart to the cylinders of its steam drilling engine on its No. 10 in the Montebello Field, California, the well being equipped with the differential automatic drilling control. The company was able to obtain an accurate chart of the operations, showing the exact force applied to the drill pipe during drilling operations, as well as recording the power used in going in and out of the hole. The chart also recorded all shutdown time, the condition of the bit as to dullness as well as indicating in a most accurate manner everything that happened connected with the actual drilling. By means of this recording device, it was found the drilling torque was practically constant. So comprehensive was the chart recorded, the device was styled the "stool-pigeon" as it told everything that had happened.

Due to the flexibility of the differential automatic control, less strain caused by vibration is placed on the whole drilling equipment including the drill pipe and this, doubtless, will cause these members to last a great deal longer. It is claimed more hole is obtained with the bit, resulting in fewer round trips of going in and out of the hole, with a consequent saving of drilling time.

With the differential it is said it is possible to use any means of power such as a gas engine, steam engine or an electric motor or two motors.

NORTH CENTRAL TEXAS

(Continued from Page 31)

Mitchell County	3,250
Reagan County	30,680
Scurry County	65
Crockett County	50
Total	43,965
Total this week	160,415
Total last week	162,110
Loss, bbls.	1,695

Wichita County Completions

Dyson and others' No. 2 Holder, dry at 1,701 feet; Compton Oil Corp.'s No. 1 Hirschi, dry at 2,785 feet; Dale and others' No. 9 Burnett, 5 bbls. at 1,467 feet; Johnson and others' No. 1 Friedly, dry at 2,000 feet; Magnolia Petroleum Co.'s No. 66 Allen, 2 bbls. at 1,695 feet; No. 9 Watkins, dry at 1,224 feet; Moran and others' No. 9 Waggoner, dry at 801 feet; O'Neil and others' No. 22 Rio Bravo, 50 bbls. at 1,935 feet; O'Neil and others' No. 23 Rio Bravo, 10 bbls. at 1,401 feet.

Wilbarger County

Barkley and others' No. 10-A Stephens, 20 bbls. at 2,077 feet; Humble Oil & Refining Co.'s No. 20 Stephens, 25 bbls. at 1,406 feet; No. 5-H Waggoner, 65 bbls. at 1,880 feet; No. 6-H Waggoner, 30 bbls. at 1,901 feet; Landreth Production Co.'s No. 3-H Waggoner, 35 bbls. at 1,888 feet; Roxana Petroleum Corp.'s No. 4-A Waggoner, 80 bbls. at 1,932 feet; No. 1-C Waggoner, 155 bbls. at 2,414 feet; States Oil Corp.'s No. 1 Waggoner (Section 66), dry at 2,375 feet.

Archer County

Barkley and others' No. 19 Wilson, 95 bbls. at 1,523 feet; Carter and others' No. 1 Wilson, dry at 1,650 feet; Lewis and others' No. 1 Wilson, 10 bbls. at 1,459 feet; Oil Investment Co.'s No. 11 Fee, 20 bbls. at 1,201 feet; No. 12 Fee, 10 bbls. at 1,204 feet; Pace and others' No. 1-D Miller, dry at 1,660 feet; Pandem Oil Corp.'s No. 1 Jackson, 10 bbls. at 1,816 feet; Waite Phillips' No. 11-B T. B. Wilson, 45 bbls. at 1,721 feet; Waite Phillips and others' No. 11-B T. B. Wilson, 70 bbls. at 1,708 feet; No. 13-B T. B. Wilson, 85 bbls. at 1,711 feet; No. 14-B T. B. Wilson, 75 bbls. at 1,703 feet; Riner and others' No. 32-B Wilson, 30 bbls. at 1,619 feet; Staley and others' No. 2 Parish, 70 bbls. at 1,585 feet; No. 3 Parrish, 95 bbls. at 1,586 feet; No. 4 Parrish, 100 bbls. at 1,584 feet; No. 1 Kemp & Kell, dry at 1,856 feet; Stump & Co.'s No. 1 Mangold, dry at 1,858 feet; Trahon and others' No. 1 Wilson, dry at 1,751 feet; Wichtex Oil Co.'s No. 7 Wilson, 35 bbls. at 1,631 feet; Wichtex Oil Co.'s No. 5 Jackson, dry at 1,436 feet; American Refining Co.'s No. 5 Portwood, 50 bbls. at 1,407 feet; Bass and others' No. 8 Portwood, dry at 1,436 feet; British American Oil Co.'s No. 11 Rogers, 15 bbls. at 1,285 feet; Consolidated Oil Co.'s No. 1 Kreeger, 90 bbls. at 1,425 feet; Hunt and others' No. 1 Cross, dry at 1,430 feet; Ilsing Production Co.'s No. 3 Prideaux, 40 bbls. at 676 feet; No. 4 Prideaux, 30 bbls. at 673 feet; McGregor and others' No. 1 Herron, dry at 1,254 feet; Magnolia Petroleum Co.'s No. 13 Lowe, 10 bbls. at 1,236 feet; Pandem Oil Corp.'s No. 6 Cockrell, 75 bbls. at 1,448 feet; No. 7 Cockrell, 50 bbls. at 1,448 feet; No. 8 Cockrell, 125 bbls. at 1,452 feet; Petroleum Production Co.'s No. 1 Anderson, dry at 1,500 feet; Prairie Oil & Gas Co.'s No. 1 Kreeger, 120 bbls. at 1,424 feet; Roxanan Petroleum Corp.'s No. 1 Kreeger, 135 bbls. at 1,428 feet; Shaw and others' No. 8-B Hayter, 10 bbls. at 1,305 feet; Simms Oil Co.'s No. 1 Cowan, dry at 1,246 feet; No. 1 Taber, dry at 1,620 feet; Texhoma Oil & Refining Co.'s No. 1 Abercrombie, dry at 1,402 feet ;Wampen Oil Corp.'s No. 2 Kruger, 160 bbls. at 1,419 feet.

Young County

Bridwell and others' No. 5 Boren, 90 bbls. at 1,078 feet; No. 6 Boren, 100 bbls. at 1,068 feet; Consolidated Oil Co.'s No. 1 Lassiter, dry at 1,256 feet; F. H. E. Oil Co.'s No. 2 Dunagan, 10 bbls. at 1,029 feet; Gragg and others' No. 1 Graham, dry at 1,150 feet; Humble Oil & Refining Co.'s No. 1 Farmer, 5 bbls. at 1,086 feet; Read and others' No. 1 Gragg, dry at 1,000 feet; Simms Oil Co.'s No. 1 McGaghren, dry at 956 feet; Tidal Oil Co.'s No. 19 Campbell, dry at 950 feet.

Stephens County

Edison and others' No. 1 Houston, 5,000,000 feet of gas at 1,887 feet; Kingston and others, No. 1 Powell, 5,000,000 feet of gas at 1,926 feet; Landreth Production Co.'s No. 1 Guest, dry at 4,125 feet; Tripplehorn Brothers' No. 1 Walker, 80 bbls. at 3,580 feet.

Eastland County

Magnolia Petroleum Co.'s No. 7 McMinn, 120 bbls. at 1,498 feet; States Oil Corp.'s No. 6 Shohan, 10 bbls. at 1,950 feet.

Callahan County

Brannon and others' No. 1 Block 40, dry at 1,455 feet; Cranfill and others' No. 1 Block 49, 5 bbls. at 1,450 feet.

Mitchell County

Atlantic Oil Production Co.'s No. 2 Womack, 140 bbls. at 3,075 feet; Green and others' No. 1 Elwood, dry at 3,955 feet; Magnolia Petroleum Co.'s No. 1 Watson, 45 bbls. at 3,870 feet; California Co.'s No. 1 Swanson, 75 bbls. at 3,065 feet.

Brown County

Anderson and others' No. 1 Allen, 100 bbls. at 1,086 feet; Carter and others' No. 1 Jones, dry at 1,200 feet; Gilman and others' No. 6 Chambers, 30 bbls. at 1,195 feet; Gilman and others' No. 7 Chambers, 10 bbls. at 1,216 feet; Phillips Petroleum Co.'s No. 2 Williams, 5,000,000 feet of gas at 1,098 feet.

Reagan County

Big Lake Oil Co.'s No. 23-A University, 155 bbls. at 2,473 feet; Texon Oil & Land Co.'s No. 33 Group 1 University, 515 bbls. at 2,932 feet.

Crockett County

Humble Oil & Refining Co.'s No. 3 Powell, 10 bbls. at 2,720 feet.

Montague County

The Texas Co.'s No. 5-A Gist, 20 bbls. at 947 feet; Texhoma Oil & Refining Co.'s No. 5-A Rowland, 40 bbls. at 1,116 feet.

Garza County

Marland Oil Co.'s No. Connell, dry at 3,495 feet.

Shackelford County

Brigham Oil Co.'s No. 2 King, dry at 526 feet; Magnolia Petroleum Co.'s No. 2 Terry, 30 bbls. at 2,713 feet.

Paso Pinto County

Panhandle Refining Co.'s No. 1 Stringer, dry at 2,004 feet.

Coleman County

Texas Pacific Coal & Oil Co.'s No. 1 Powell, dry at 2,630 feet.

Wichita County Drilling

Burt and others' No. 1 Honsard, drilling at 2,675 feet; Cosy Oil Co.'s No. 10 Warren, 950 feet; Magnolia Petroleum Co.'s No. 125 Reilly, 1,000 feet; No. 128 Reilly, underreaming; No. 10 Warren, drilling at 950 feet; Texhoma Oil & Refining Co.'s No. 1-A Beach, 2,300 feet; Weisendinger and others' No. 1 Parker, 1,131 feet; Dale Oil Corp.'s No. 1 Thorman, 700 feet; Panhandle Refining Co.'s No. 4 Jackson, sand at 1,802 feet; Beaudoin and others' No. 1-A Snow, drilling at 1,100 feet; Bridwell and others' No. 1 Waggoner Brothers, 1,220 feet; Bullington and others' No. 14 Jennings, 1,680 feet; Culberson Co.'s No. 35 Waggoner Brothers, 750 feet; Dale and others' No. 10 Burnett, 550 feet; Dale Oil Corp.'s No. 21 Jennings, 900 feet; Fisher and others' No. 3 Burnett, 300 feet; Hunter and others' No. 10 Waggoner Brothers, 300 feet; Magnolia Petroleum Co.'s No 70 Honaker, 1,270 feet; No. 1 Kelley setting casing at 1,005 feet; No. 13 Maer, sand at 1,760 feet; No. 14-A Pratt, drilling at 750 feet; No. 19-A Ramming, spudding; No. 18-B Ramming, drilling at 400 feet; No. 11 Watkins, 770 feet; Mitchell and others' No. 1 Waggoner Brothers, 1,370 feet; Petroleum Production Co.'s No. 19 Allen & Kemp, 600 feet; No. 1 Douglas, 500 feet; Ataley and others' No. 1 Hines, 1,850 feet; Texhoma Oil & Refining Co.'s No. 7-E Burnett, showing oil at 1,628 feet; Texhoma Oil & Refining Co.'s No. 14 Waggoner Brothers, sand at 1,720 feet; White Brothers' No. 1-B Mitchell, drilling at 800 feet.

Wilbarger County

Atlantic Oil Production Co.'s No. 3 Sigler-Waggoner, drilling at 1,350 feet; No. 4 Sigler-Waggoner, spudding; Barkley and others' No. 11-A Stephens, drilling at 2,325 feet; No. 6-B Stephens, 1,150 feet; Garretson and others' No. 1 Waggoner, underreaming; Gose and others' No. 1 Woodward, drilling at 2,300 feet; Humble Oil & Refining Co.'s No. 23 Castlebury, 2,048 feet; No. 42 Stephens, 2,201 feet; No. 43 Stephens, 2,226 feet; No. 5-G Waggoner, cleaning out at 1,916 feet; No. 7-H Waggoner, drilling at 1,747 feet; No. 2-K Waggoner, 691 feet; No. 3-K Waggoner, 660 feet; No. 1-L Waggoner, 2,175 feet; No. 2-M Waggoner, 1,404 feet; No. 3-M Waggoner, 1,805 feet; No. 1-N Waggoner, 1,335 feet; No. 1-O Waggoner, 1,690 feet; No. 3-O Waggoner ,1,728 feet; No. 4-O Waggoner, 1,840 feet; Independent Oil & Gas Co.'s No. 1 Waggoner, 2,180 feet; Landreth Production Co.'s No. 4-D Waggoner, showing oil at 2,638 feet; No. 5-F Waggoner, drilling at 735 feet; No. 2-G Waggoner, 775 feet; No. 2-H Waggoner, 782 feet; No. 2-I Waggoner, 2,425 feet; No. 1-L Waggoner, showing oil at 1,876 feet; No. 2-M Waggoner, drilling at 1,538 feet; No. 2-OO Waggoner, sand at 1,875 feet; No. 3-OO Waggoner, drilling at 1,375 feet; No. 4-OO Waggoner, 1,760 feet; No. 1-EE Waggoner, 2,423 feet; No. 1-HH Waggoner, sand at 2,312 feet; No. 3-NN Waggoner, 1,105 feet; No. 1-PP Waggoner, 1,465 feet; No. 1-QQ Waggoner, 2,015 feet; No. 1-SS Waggoner, 770 feet; No. 1-AAA Waggoner, 855 feet; Lawson and others' No. 14 Waggoner, fishing at 2,415 feet; Mattylee Lippard's No. 1 Waggoner, fishing at 608 feet; McCamey and others' No. 22 Stephens, cleaning out at 2,050 feet; No. 30 Stephens, drilling at 930 feet; No. 31 Stephens, sand at 1,795 feet; No. 33 Stephens, 960 feet; Magnolia Petroleum Co.'s No. 48 Piper, 500 feet; No. 52 Sumner, 600 feet; Milham Corp's No. 2-A Waggoner, 1,952 feet; No. 2-B Waggoner, showing oil at 2,390 feet; No. 1-D Waggoner, drilling at 1,550 feet; No. 5-H Waggoner, cleaning out at 1,805 feet; No. 7-H Waggoner, drilling at 940 feet; No. 1-L Waggoner, showing oil at 1,965 feet; Miller Oil Co.'s No. 2 Waggoner, drilling at 1,350 feet; Prairie Oil & Gas Co.'s No. 2-A Waggoner, 2,308 feet; No. 2-B Waggoner, 995 feet; Rio Bravo Oil Co.'s (Section 19), No. 1, 810 feet; Roxana Petroleum Corp.'s No. 6-A Waggoner, 376 feet; Shamrock Oil Co.'s No. 1-B Waggoner, fishing at 1,710 feet; No. 1-K Waggoner, drilling at 2,115 feet; No. 1-W Waggoner, 2,140 feet; Shipley and others' No. 1 Castlebury, 2,518 feet; No. 1 Waggoner, 700 feet; Staley and others' No. 13 Stephens, cleaning out at 2,070 feet; The Texas Co.'s No. 1 Zipperle, drilling at 2,185 feet; Texhoma Oil & Refining Co.'s No. 1 Waggoner, underreaming; Winnipeg Oil Co.'s No. 1 Lloyd, drilling at 1,700 feet.

Archer County

American Refining Co.'s No. 1 Jackson, drilling at 500 feet; Hammond and others' No. 1 Thom, 1,380 feet; Staley and others' No. 1 Kemp & Kempner, 900 feet; Texhoma Oil & Refining Co.'s No. 6 Hamilton, showing oil at 1,800 feet; Abernathy and others' No. 3 Wilson, drilling at 1,490 feet; Atlantic Oil Production Co.'s No. 11-C Wilson, 1,200 feet; Barkley and others' No. 20 Wilson, 300 feet; Burns and others' No. 2 McCray, 1,505 feet; Chenault and others' No. 1 Parrish, 650 feet; Empire Gas & Fuel Co.'s No. 1 Turberville, 1,137 feet; No. 1 Young, 140 feet; Humble Oil & Refining Co.'s No. 1-F Wilson, 1,640 feet; Kentucky Oil Corp.'s No. 3 Miller, 890 feet; Magnolia Petroleum Co.'s No. 7 Rutty, 885 feet; McCarty Oil Co.'s No. 17-B Wilson, 550 feet; No. 6-C Wilson, 1,522 feet; Phillips Petroleum Co.'s No. 92 White, 1,300 feet; Featherstone Corp.'s No. 16 Nichols, 1,595 feet; No. 17 Nichols, 1,390 feet; River and others' No. 2-C Wilson, 1,410 feet; Staley and others' No. 3-A Parrish, 1,500 feet; No. 6-B Parrish, 700 feet; The Texas Co.'s No. 11 Carter Brothers, 285 feet; No. 2 Andrews, 1,519 feet; No. 1 Parrish, 1,634 feet; Wichtex Oil Co.'s No. 6 Jackson, 1,260 feet; Woods and others' No. 1-A Wilson, fishing at 1,606 feet; Young and others' No. 2 Abney, drilling at 1,230 feet; No. 3 Abney, setting casing at 417 feet; American Refining Co.'s No. 6 Portwood, showing oil at 1,409 feet; British American Oil Co.'s No. 12 Rogers, drilling at 1,240 feet; Consolidated Oil Co.'s No. 2 Kreeger, 1,469 feet; Craig and others' No. 1 Langley, 1,100 feet; Goldsmith and others' No. 1 Hamilton, 1,025 feet; Ilsing Production Co.'s No. 2 Prideaux, sand at 615 feet; No. 1 Prideaux, sand at 656 feet; Maer and others' No. 1 Morrison, drilling at 920 feet; Meyers and others' No. 1 McCurtry, showing oil at 603 feet; Pandem Oil Corp.'s No. 9 Cockrell, sand at 1,434 feet; No. 10 Cockrell, setting casing at 1,421 feet; No. 11 Cockrell, drilling at 1,421 feet; Petroleum Production Co.'s No. 1 Kemkel, 690 feet; Phillips Petroleum Co.'s No. 1 Kreeger, 1,360 feet; Prairie Oil & Gas Co.'s No. 4 Kreeger, 1,220 feet; No. 5 Kreeger, 1,120 feet; No. 2 Kovar, 520 feet; Ray and others' No. 1 First State Bank, sand at 1,441 feet; Richards and others' No. 1 Gin Lot, 1,490 feet; Roxana Petroleum Corp.'s No. 2 Kreeger, showing oil at 1,428 feet; No. 3 Kreeger, 1,260 feet; No. 1 Pandem, 1,350 feet; Shaw and others' No. 5-A Hayter, 1,070 feet; The Texas Co.'s No. 4 Jeske, 780 feet; No. 1 Prideaux, 470 feet; Wampem Oil Corp.'s No. 4 Kreeger, 1,370 feet; White and others' No. 1 Richardson, sand at 1,488 feet; Tidal Oil Co.'s No. 20 Campbell, drilling at 830 feet; Underwood Drilling Co.'s No. 1 Benson, 867 feet; White and others' No. 1 Graham, 860 feet; Abercrombie and others' No. 1 Stewart, at 500 feet; Atlantic Oil Production Co.'s No. 1 Oldhom, 300 feet; Consolidated Oil Co.'s No. 1 Wilson, 300 feet; No. 1 Harris, 450 feet; Hammond and others' No. 2 Oldhom, 1,030 feet; Maer and others' No. 1 Knight, 600 feet; Major Petroleum Co.'s No. 1 Wallace, 1,350 feet; Primrose Petroleum Co.'s No. 5 Wolf, 900 feet; Red Bank Oil Co.'s No. 1 De Kinder, fishing at 1,550 feet; Riley and others' No. 1 Wilheom, fishing at 1,170 feet; Texhoma Oil & Refining Co.'s No. 4 Abercrombie, drilling at 548 feet.

Young County

Adams and others' No. 1 McClatchey, drilling at 100 feet; Atlantic Oil Production Co.'s No. 1 Wells, 150 feet; Bashara and others' No. 3 Marshall, 275 feet; Batex Oil Co.'s No. 1 Portwood, 100 feet; Bridwell and others' No. 9 Boren, 850 feet; No. 1 Farmer, 150 feet; No. 7 Boren, 150 feet; Camp Oil & Gas Co.'s No. 1 Campbell, 950 feet; Carter and others' No. 1 Benson, 620 feet; Coones and others' No. 2 Scarborough, showing oil at 4,375 feet; Harris and others' No. 1 Watson, drilling at 100 feet; Hoffer Oil Corp.'s No. 1 Boyd, 200 feet; Hubbard Drilling Co.'s No. 1 Harrison, fishing at 2,765 feet; Kay and others' No.

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says STURDY STEVE

"Some folks might think the Whitworth Thread is a small part of the D&B Sucker Rod. It is. But it is important enough to be one of the main reasons why D&B Rods are the best in the field today."

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BRANCH STORES

COALINGA, BAKERSFIELD, TAFT, TORRANCE, SIGNAL HILL AND SANTA FE SPRINGS, CALIFORNIA.

1 Eichelberger, drilling at 200 feet; Phillips Petroleum Co.'s No. 2 Corbett, fishing at 2,680 feet; Prairie Oil & Gas Co.'s No. 4 Boren, drilling at 430 feet; Simms Oil Co.'s No. 1 Golston, 4,020 feet; Swastika Oil Syndicate's No. 1 Wilson, sand at 1,000 feet; The Texas Co. and Prairie Oil & Gas Co.'s No. 3 Boren, drilling at 1,020 feet.

Stephens County

Mid-Kansas Oil & Gas Co.'s No. 7 Hill, cementing casing at 3,040 feet; No. 9 Hill, underreaming; No. 1 Lee, showing oil at 3,690 feet; Mid-Texas Oil Co.'s No. 4 Cunningham, drilling at 2,025 feet; No. 1 Morrison, plugging back to 3,167 feet; Swensondale Oil Co.'s No. 8 Cobb, fishing at 3,323 feet; No. 1-B Echols, drilling at 2,300 feet; Texas Consolidated Oil Co.'s No. 7 Martin, 3,360 feet; Atkinson and others' No. 1 Keathely, 3,820 feet; Barnhart and others' No. 1 Bradford, spudding; Brown & Co.'s No. 4 Akin, drilling at 3,183 feet; Christie Brothers' No. 2 Gardenhire, 500 feet; Clark and others' No. 2 Litton, 420 feet; Corzelius Brothers' No. 1 Goforth, underreaming; Hughes and others' No. 5 Gandy, fishing at 2,140 feet; Hughes and others' No. 1 Long, fishing at 2,200 feet; Humble Oil & Refining Co.'s No. 5 Smith, drilling at 1,130 feet; Landreth Production Co.'s No. 1 Sikes, 1,800 feet; Livingstone and others' No. 1 Hodges, cleaning out at 1,972 feet; Price and others' No. 6 Bruce, drilling at 1,970 feet; Producers Union Oil Co.'s No. 1 Moon, cleaning out at 3,370 feet; Provident Oil Co.'s No. 1 Nolon, drilling at 1,880 feet; Scanlon and others' No. 1 Ming, 3,710 feet; States Oil Corp.'s No. 3 Sikes, 1,300 feet; Texas Pacific Coal & Oil Co.'s No. 61 Binney, 1,535 feet; No. 62 Binney, 525 feet; No. 10 Veale, 3,400 feet; The Texas Co.'s No. 12 Curry, 1,380 feet.

Eastland County

Bateman and others' No. 1 Motes, drilling at 2,400 feet; Corzelius and others' No. 1 Whitson, 2,600 feet; Cranfill and others' No. 1 Collins, spudding; Knox-Lewis Oil Co.'s No. 1 Wright, drilling at 1,950 feet; Lewis and others' No. 1 University, spudding; Lightfoot and others' No. 3 Allen, underreaming; Lobough and others' No. 1 Casey, drilling at 850 feet; Magnolia Petroleum Co.'s No. 9 Hankins, 2,530 feet; Prairie Oil & Gas Co.'s No. 2 Brelsford, spudding; Robert Oil Corp.'s No. 1 Brashear, underreaming; No. 1 Wood, drilling at 750 feet; Texas Pacific Coal and Oil Co.'s No. 1 Pease, 300 feet; Adams and others' No. 1 Grone, 2,018 feet; Bateman and others' No. 1 Mulloy, 500 feet; Corzelius Brothers' No. 1 Poe, 240 feet; Goodwin and others' No. 1 Burnett, cleaning out at 3,362 feet; Hart Brothers' and others' No. 1 Johnson, drilling at 740 feet; Johnson and others' No. 1 Smith, 1,060 feet; Leon Oil Co.'s No. 1 Kimbrough, 2,980 feet; Reeves and others' No. 1 Leveridge, fishing at 3,250 feet; Root and others' No. 1 Luse, drilling at 3,550 feet; No. 1 Strickland, 670 feet; Rumbough and others' No. 1 White, underreaming.

Brown County

Anderson and others' No. 1 Clark, drilling at 1,400 feet; Barkley and others' No. 1 Dunn, spudding; Carter and others' No. 2 Dunn, spudding; No. 1 Stapp, drilling at 1,000 feet; Conway Brothers' No. 4 Chambers, 950 feet; Cosden and others' No. 9 Gofford, 450 feet No. 1-A Williams, 356 feet; Cox and others' No. 1 Algood, 300 feet; Danciger and others' No. 2 Eddington, setting casing at 682 feet; Douglas and others' No. 1 Graham, setting casing at 674 feet; Dozier and others' No. 2 Byrd, drilling at 500 feet; Gillett and others' No. 6 Prather, 700 feet; Gray and others' No. 1 Lewis, setting casing at 1,350 feet; Haggard and others' No. 2 McDonough, drilling at 650 feet; Hill and others' No. 2 Newton, spudding; Humble Oil & Refining Co.'s No. 1 Hodnett, drilling at 815 feet; Humble Oil & Refining Co.'s No. 1 Kilgore, 753 feet; Hutton and others' No. 1 Mauldin, 400 feet; Keough Brothers' No. 1 Wheeler, 2,165 feet; McLester Oil Co.'s No. 4 Clark, 500 feet; McLester and others' No. 2 Woolridge, 900 feet; Mahlstedt Oil Co.'s No. 1 Eddington, 600 feet; Mount and others' No. 1 Gaines, cleaning out at 1,342 feet; Mulloy and others' No. 6 Prather, setting casing at 890 feet; Pandem Oil Corp.'s No. 1 Prather, drilling at 1,050 feet; Prairie Oil & Gas Co.'s No. 13 Gaines, 1,300 feet; Rhodes and others' No. 10 Prather, 400 feet; Schoffner and others' No. 6 Prather, 1,313 feet; Schoffner and others' No. 7 Rhodes, 200 feet; Shadbolt and others' No. 2 Lewis, 725 feet; Slick and others' No. 3 Starr, 865 feet; Suddereth and others' No. 2 Byrd, 640 feet; Island Oil Co.'s No. 1 Parker, fishing at 1,660 feet; Moore and others' No. 1 Ward, drilling at 1,540 feet.

Reagan County

Big Lake Oil Co.'s No. 51 University, fishing at 2,845 feet; No. 52, drilling at 2,960 feet; No. 53, plugging back to 2,290 feet; No. 56 drilling at 1,680 feet; No. 57, fishing at 2,655 feet; No. 58, 2,550 feet; No. 59, 2,710 feet; No. 60, at 2,479 feet; No. 61 at 2,450 feet; No. 62 at 2,540 feet; No. 65 at 225 feet; No. 66 at 130 feet; No. 20-A at 2,455 feet; No. 25-A cleaning out at 2,480 feet; Milham Corp.'s No. 1 University, drilling at 3,080 feet; Peer Oil Corp.'s No. 1 Sawyer ,2,110 feet; Tannehill and others' No. 1 University, 1,160 feet; Texon Oil & Land Co.'s No. 1-B University, drilling at 500 feet.

Late Fields

(Continued from Page 31)

that already have Panhandle branches are the Continental Supply Co., with houses at Amarillo and Panhandle, the Oil Well Supply Co., with a branch at Panhandle; the National Supply Cos., the Wagner Supply Co., the Longhart Supply Co., Frick-Reid Supply Co., the Bridgeport Tool Co., and the International. The Tulsa Pipe & Supply Co., the Hinderliter Tool Co., and the Atlas Supply Co. are among others that contemplate an early entrance into this territory and most of them are now seeking sites for their branches.

Good progress is being made on the proposed 10-inch pipe line from the Panhandle Field to Wichita Falls, which is being worked out by agreement among leading producers, refiners and pipe line companies. Also work is progressing on the 6-inch loop of the Plains Pipe Line from the producing area to the loading rack at Panhandle and it is reported the Pan-Tex Pipe Line Co. is making arrangements for enlarging its service in the field. The Pan-Tex line runs from the southwest corner of Hutchinson County to Amarillo.

NORTH CENTRAL TEXAS

FORT WORTH, Tex., Feb. 22.—The late developments in the North Central Texas territory are the Cook well of Roeser & Pendleton and the Marland Oil Co. in Shackelford County, and Cosden and associates' No. 3 Westerman, in the north Brown County Field. The Cook well is in the northwest corner of Section 85 of the Eastern Texas Railway lands of Shackelford County, in the Albany district. It was drilled by Marland Oil Co. on an 18,000-acre tract owned by Roeser & Pendleton, in which they are reported to have sold a half interest to Marland for five wells. The well hit the top of the pay at 1,240 feet and when only 18 inches in the sand began flowing by heads. It was estimated at 500 bbls. daily, but has been increasing and it is now estimated good for something like 1,000 bbls.

The Cosden well is on the block of acreage purchased last fall from Moore and others, in northern Brown County. It is producing from the regular Crosscut sand at around 1,300 feet and started off with a production of about 50 bbls. an hour.

In Wichita County, there are two new producers. Hooser and others' No. 1 Hines, though not completed, is swabbing oil at the rate of 125 bbls. from sand at 1,392 to 1,393 feet and Perkins & Cullum's No. 5 Beaver-Electra is swabbing 185 bbls. daily from the pay at 1,613 to 1,631 feet.

There are around a dozen new producers in the Vernon district of Wilbarger County, only a few listed as completions. Barkley and others' No. 5-B Stephens is flowing at the rate of 100 bbls. daily from the lime at 2,338 to 2,370 feet. The Humble Oil & Refining Co. has two new producers on its Stephens lease and two on the Waggoner. No. 22 Stephens is making some water, but made 370 bbls. of oil and only about 25 bbls. of water in 11 hours from sand at 2,304 to 2,382 feet. No. 41 Stephens is completed, making 260 bbls. from 2,250 to 2,390 feet.

The Humble Co.'s No. 4-I Waggoner is swabbing oil at the rate of 60 bbls. daily from sand at 1,868 to 1,890 feet and No. 2-O Waggoner is swabbing 200 bbls. from sand at 1,858 to 1,880 feet.

The Landreth Production Co. has two new wells on the Waggoner, No. 11-D being a late completion making 110 bbls. from sand at 1,863 to 1,876 feet, and No. 1-OO Waggoner swabbing 90 bbls. from the lime at 2,323 to 2,353 feet.

The Milham Corp.'s No. 1-B Waggoner is flowing by heads and making 30 bbls. daily from the saturated lime at 2,405 to 2,408 feet and the Roxana Petroleum Corp.'s No. 5-A Waggoner is swabbing 100 bbls. daily from sand at a total depth of 1,942 feet. The Petroleum Producers Co.'s No. 7-A Dill is swabbing 150 bbls. from a depth of 2,320 feet and Staley and others' No. 12 Stephens is estimated good for 150 bbls. at 2,335 feet.

Archer County also records a number of late producers, the best being the M. & V. Oil Co.'s No. 4 Kunkel, estimated making 300 bbls. from sand at 1,171 to 1,174 feet. Bowers and others' No. 1 Darilek is estimated good for 75 bbls. at 1,432 feet and the Camp Oil & Gas Co.'s No. 1 Rachuig, 100 bbls. from sand at 1,172 feet and may be drilled deeper.

The Wampem Oil Corp.'s No. 3 Kreeger is estimated making 80 bbls. in sand at 1,411 to 1,417 feet and Perkins and others' No. 11 Anderson is swabbing 125 bbls. from sand at 1,425 to 1,429 feet.

In the Nocona district of Montague County, Benton & Woods No. 2 Hines is a new producer. It has sand at 960 to 970 feet and on a 20-hour test made 105 bbls.

There are no developments of interest from either Crockett or Upton Counties. The Dixie Oil Co.'s No. 1 Burleson is in the pay at 2,188 to 2,219 feet and reported to have 1,200 feet of oil in the hole. The Independent Oil & Gas Co.'s No. 1 Burleson has been shot with 100 quarts from 2,163 to 2,210 feet and according to latest reports, has bridged.

A good showing of oil has been reported in a rank wildcat well in Presidio County. It is Hadlock & Miller's No. 1 Toole, in Section 123, Block 3 of the D. & P. Railway Co. Survey. The well, according to reports, encountered an oil producing formation at 2,015 feet and at 1 foot in the well filled up 1,600 feet. Drillers were carrying considerable water when the pay was encountered and preparations are being made to underream the casing which stands at around 1,900 feet. It is said 32 bailers of 46 gravity oil were bailed.

The Magnolia Petroleum Co. has purchased from the Roberts Oil Corp. the company's properties on the Petitt and Dawson leases, in the Olden district of Eastland County. The property consists of 233 acres of leases on which there are 18 producing oil wells making an average of 330 bbls. daily. The consideration was $225,000. All, or practically all, the stock of the company was held by Jack Rockerts, of Breckenridge.

GULF COAST

HOUSTON, Tex., Feb. 23.—Rycade Pet. Corp.'s No. 1-C, in the Orange Pool, is a gasser at 4,820 feet. The Humble Oil Co.'s No. 25 Chesson there is bailing at 4,840 feet.

OKLAHOMA

The Roxana Petroleum Corp.'s No. 1 Stover, SW cor. Section 13-19-4, Ingalls Pool, Payne County, was reported on Tuesday morning flowing 87 bbls. an hour from sand at 3,714 feet, drilled in 8 feet. The Olean Petroleum Co.'s deep sand discovery well, NW cor. Section 24-19-4, is holding up very well and was last reported at 1,150 bbls. a day. The same company's No. 1 Farren, NE cor. Section 23-19-4, made 900 bbls. in the 24 hours ending Tuesday morning.

The Comar Oil Co.'s No. 7 Priboth, SW cor. NW, Section 21-29-1e, North Braman district, Kay County, got broken sandy shale at 2,324 to 2,400 feet. The well flowed 90 bbls. the first hour and 30 bbls. the second hour and then quit. It will be drilled deeper.

The Kingwood Oil Co. and Brock's No. 1 Lowe, C NE SW SE, Section 29-8-9, Hughes County, was reported Tuesday morning to be blowing 30,000,000 feet of gas a day with a 150-bbl. daily spray of oil. A later sand report put the top of the sand at 3,414 feet and the well was 9 feet in. The Independent Oil & Gas Co.'s No. 1 Harjo, C SE NE NE, Section 25-8-9, is fishing for an underreamer lug at 3,398 feet and has made no progress on the hole for several weeks. The Sands Petroleum Co. has started spudding No. 1 Harnogee, C SE SE SE, Section 10-8-9. These are the only operations in the township.

The Homaokla Oil Co. and New England Oil & Pipe Line Co.'s No. 1 in 2 Carolina, SE cor. NE NE, Section 6-7-8, Wewoka district, produced 1,608 bbls. for the 24 hours ending Tuesday morning at 7 o'clock.

The Magnolia Petroleum Co.'s No. 1 School Land, NE cor. Section 36-23-8, Pawnee County, which has been swabbing 208 bbls., will be put on the pump.

The Waite Phillips Co.'s No. 2 Alec, SE cor. NE SE, Section 27-27-8, Creek County, is flowing 800 bbls. a day from sand at 3,160-70 feet.

KANSAS

It was reported on Tuesday morning that the Fleeger and the Carter Oil Co. were having trouble in running their pipe in their important test in Section 16-27-7w, Kingman County. The hole caved necessitating a cleaning out job and at last reports they were 8 feet off the bottom.

Seven miles northwest of the Rainbow Bend Pool, the Roxana Petroleum Corp. and Phillips Petroleum Co.'s No. 1 Miller, NE cor. SW, Section 17-32-2e, Sumner County, after a 20-quart shot in sand at 2,950-60 feet, swabbed 140 bbls. in 24 hours.

SAN JUAN BASIN

FARMINGTON, N. Mex., Feb. 22.—Continental Oil Co.'s No. 14 Rattlesnake came in for 150 bbls. Oil was struck in the post-Dakota sand around 900 feet. E. J. Miley, in the Bloomfield district, reports a small well, possibly 5 bbls. It will be deepened.

Six miles northeast of Farmington, the Portage Oil & Gas Co. struck 4 feet of gas sand at 848 feet, with possibly enough gas to fuel the boiler.

W. R. Childers has sold a half interest in his properties to New York, San Francisco and Chicago parties. They lie on the Mancos, Westwater and Ute structures and the new capital will be employed in developing them.

Gallup reports the pipe line of the Continental Oil Co. has been surveyed and material is expected within 30 days.

DEPLETION AMENDED TO 27½ PER CENT IS SATISFACTORY ON OIL

(Continued from Page 125)

depletion allowance be less than it would be if computed without reference to this paragraph."

This means that the oil company will be entitled to depletion amounting to 27½ per cent on its gross income unless that allowance is less than the depletion computed on cost or the 1913 value. For this reason, nothing is taken away from the taxpayer. The extended discussion and decisive action by this Congress is expected to settle this question of depletion allowance for a long time. It looks like a permanent principle of taxation as a guide to Congress. The fight against it exhausted every possible argument the opposition could muster and its passage was not on any partisan division, but was the result of both Republican and Democratic votes.

OKLAHOMA FIELDS

(Continued from Page 34)

den have a rig up for No. 1 Richards, NE cor. SE SE, Section 36-18-9. The Sand Springs Home is rigged up to drill No. 1 Riley, NW cor. NE SE NW, Section 3-19-11. The Pennok Oil Co.'s No. 10 McKee, CEL NW NW, Section 20-19-11, was drilling below 1,200 feet.

Glidden & Holmes' No. 2 Ireland, NW cor. SE NW, Section 22-19-11, got Turkey Mountain sand at 2,252-56 feet, and swabbed 75 bbls. the first 24 hours and 25 bbls. a day a few days later. The well is showing some water. O'Brien & Meadors' No. 2, CSL NW NW, Section 24-19-12, was abandoned as dry at 1,530 feet. The Pulaski Oil Co. is drilling deeper in its No. 10 Stewart, C SW NW, Section 4-16-13.

Hunt and others are drilling deeper in No. 6 CE half NE SE, Section 17-19-11. Wells and others are drilling deeper in No. 1 Tahledge, NW cor. Section 10-18-11, present depth 850 feet. The Riverland Oil Co. is drilling deeper in No. 1 Johnson, NW cor. NE SW, Section 28-18-11, present depth 2,405 feet. Munn Brothers are rigging up No. 2, NE cor. NW NE NW, Section 6-18-12. C. M. Ireland has a rig up for No. 5 Freeman, SW cor. SE SE, Section 8-17-11. Cole & Shaffer in a test in the SW cor. SE SE, Section 8-17-11, found sand at 2,464-66 feet, and the hole was abandoned. Holmes and others' No. 1 Armstrong, NE cor. SW, Section 11-17-13, is rigged up. The Enfisco Oil Corp.'s No. 20 Berryhill, NW cor. SE SW, Section 18-17-13, was shot in sand at 1,780-96 feet, and started at 15 bbls.

Green and others' No. 7, CW half NE, Section 2-17-14, was drilling below 600 feet.

Prairie Oil & Gas Co.'s No. 4, NE cor. SW, Section 4-16-13, is a 20-bbl. pumper at 2,120-22 feet, gravity 53 degrees. It is not a completion.

In the Okmulgee Zone

T. A. Johnson and others' No. 3 Colbert, SW cor. NW SW NW, Section 22-14-12, Okmulgee County, got the top of the sand at 1,954 feet, with shell and sandy lime to 1,978 feet. There was pay from 1,978-84 feet. The well produced 250 bbls. the first 18 hours, 30 per cent sediment and water, gravity 28 degrees. It was not a completion. Hazlett and others have 7,000,000 feet of gas in No. 1 Kanard, CWL SW SE, Section 25-14-12, from a sand at 1,983-2,040 feet. The gas is exhausted and the hole will be drilled deeper.

C. T. Noble was drilling below 600 feet in No. 6, SW cor. NW SW, Section 20-15-12. Sinclair Oil & Gas Co.'s No. 1, SW cor. NW NW, Section 22-14-12, was drilling below 300 feet. Paige Brothers Oil Co. have a rig up for No. 1 Depriest, NW cor. SW SW, Section 18-15-13, corrected location. J. L. Slusher has commenced drilling No. 1, C SE NE SE, Section 21-14-17, Muskogee County. The Skelly Oil Co.'s No. 1 Berryhill, NE cor. SE NE, Section 11-16-11, was dry and abandoned at 2,617 feet. The Henry Oil Co. got a 25-bbl. well, No. 2 Vowell, SE cor. SW, Section 5-16-12, in Dutcher sand at 2,039-44 feet. It is not a completion. Suppes and others' No. 1, NE cor. NW SE, Section 9-16-12, was dry and abandoned at 2,390 feet. Sheldon and others may drill deeper in their No. 4 Simopoka, SW cor. NW SW SW, Section 20-16-12, which was a 1,500,000-foot gas producer at 2,190-2,200 feet. Carter & Owens' No. 1, NE cor. Section 30-16-12, is spudded in. Kellough and others were drilling at 1,815 feet in No. 1 Barnett, SE cor. NW SE, Section 29-15-11. Claypool & Bright's No. 1 Wright, C NW SW NE, Section 18-15-12, was drilling at 300 feet. The G. M. Oil Co. has a failure in No. 1 Dye, CEL SW, Section 19-15-12, which was abandoned at 2,785 feet. Gray and the Devonian Oil Co.'s No. 1 Peloche, NE cor. SE NW SE, Section 23-15-12, was drilling below 400 feet. The Vierson Oil & Gas Co.'s No. 2 Unallotted, SE cor. NE NW NW, Section 35-15-12, sand at 1,867-1,903 feet, 18,000,000-foot gas well, completed.

Barnara Oil Co. has started drilling No. 3 Rabbitt, CWL NE NW, Section 35-15-12.

T. A. Johnson completed No. 3 Colbert, SW cor. NW SW NW, Section 22-14-22. Top of the sand lay at 1,954 feet, pay at 1,978-84 feet. The well made 300 bbls. the first day and later when put on the pump made a 150-bbl. well, with about 2 per cent water, and 28 per cent basic sediment. It is 28 gravity oil; same operators' No. 4 Colbert, a rig, is in the NW cor. SW NW, Section 22.

Terrian & Balliere's No. 1 Bean, SE cor. NE SW, Section 31-15-13, was dry and abandoned at 2,738 feet. A. W. Klein's No. 1 Campbell, SE cor. SW NE, Section 19-15-14, was dry and abandoned at 2,545 feet. J. E. Wallace's No. 1 Colbert, NE cor. NW NW, Section 14-14-14, got sand at 1,193-98 feet, shot it at 1,790-1,802 feet. Missener and others' No. 4 Flint, CEL SE SE, Section 24-14-14, got sand at 1,199-98 feet, shot it with 40 quarts and the well started at 8 bbls. a day. J. J. Schock and others' No. 1 Brown, SW cor. Section 9-15-13, was drilling below 400 feet. J. L. Selby and others' No. 7 Ragen, SW cor. SE, Section 24-14-13, is spudded in. Mechling & Berlin's No. 2 Colbert, SW cor. NE NE, Section 14-14-14, is spudded in.

H. F. Fair and others' No. 4 Grayson, NW cor. NE NW SE, Section 7-13-12, has the tools in. H. C. Marcey and others' No. 4 Gray, CWL SE NW, Section 8-13-12, started at 150 bbls. from sand at 2,183-2,220 feet, shot with 80 quarts. H. E. Clark and others' No. 9 McIntosh, CEL SW SE, Section 22-13-12, rigging up.

M. P. Evans and others' No. 2 Morgan, C SE SW SE, Section 3-12-11, is spudded in. John Burns' No. 3 Simmons, NW cor. NE NW, Section 7-12-11, was drilling below 2,725 feet. It found sand with a show of oil and gas at 2,679-83 feet. Amerada Petroleum Corp.'s No. 11 Harjo, SE cor. NW, Section 13-12-11, made 282 bbls. the first 24 hours after a shot of 15 quarts in sand at 3,350-62 feet. The Independent Oil & Gas Co. and Anglo-Tex Oil Co.'s No. 1-A, SW cor. NE, Section 13-12-11, was dry and abandoned at 2,705 feet. The Independent and Anglo-Tex companies have rigs on, up, or building for No. 11-A Sugar, C NW SE NE, Section 13-12-11; No. 10-A Sugar, C SE NW NE, Section 13; No. 6 Sugar, C SE SW NE, Section 13; No. 2-A Sugar, C NE SW NE, Section 13; No. 1-B Sugar, C SW SW NE, Section 13, a triplet well. The Amerada Petroleum Co. has spudded in No. 14 Harjo, C SW NE NW, Section 13-12-11. John Burns in building a rig for No. 7 Simmons, NW cor. SW NW, Section 17-12-11.

The Independent Oil & Gas Co.'s No. 4 Larney, SW cor. NE NW, Section 18-12-12, is a 200-bbl. well at 2,540-46 feet.

C. H. Lebow got one of the best wells of the week in No. 11 Doyle C E half, NE SW, Section 15-13-14. It started at 592 bbl's. the first day from sand at 2,436-42 feet. He was drilling at 1,000 feet in No. 12, CSL NE SW, Section 15; and has started drilling No. 13, SE cor. NE SW, Section 15. Cusack and others' No. 12, NW cor. SW SE, Section 29-13-14, was a 100-bbl. well at 1,667-69 feet.

In the Boynton district, Wineland and others' No. 13 Wiley, NE cor. SE NE SE, Section 8-14-15, is a 3,000,000-foot gasser at 1,476-88 feet. J. L. Powell's No. 7 Seals, CWL NW SW, Section 9-14-15, had a 15-bbl. showing in sand 1,540-80 feet, but will drill deeper. W. R. Summerville has a rig up for No. 1 King, C NW SE SW, Section 9-13-15.

In the Holdenville Area

The Berry Petroleum Co.'s No. 1 Hill, C SW NW NW, Section 8-9-8, was abandoned as dry at 3,408 feet. Southwestern Petroleum Co.'s No. 1, C NE SE NE, Section 18-9-8, shot with 40 quarts in sand at 3,310-36 feet, 130 bbls. The Dixie Oil Co. got a 15-bbl. initial production out of No. 4 Walker, C NW NE SE, Section 29-8-8, an old well drilled deeper to sand at 3,844-50 feet, total depth 3,863 feet, after a 5-quart shot.

The Empire Gas & Fuel Co.'s No. 1 Grayson, NW cor. NE NW NE, Section 30-11-10, is a 17,000,000-foot gas well at 2,958-65 feet. It was shut in. The Windsor Oil Co.'s No. 9 Holmes, CNL SW, Section 22-11-11, was dry and abandoned at 3,700 feet. The Transcontinental Oil Co. shut in its No. 1 School Land, SE cor. NE NE, Section 10-10-11. It is a 2,500,000-foot gasser from sand at 2,472-82 feet.

Guy Fisher and the Carter Oil Co. have started drilling No. 2 Bird Creek, C SE SE SE, Section 7-10-12. McCarty and others' No. 1 Fisher, SW cor. SE SW NE, Section 8-10-12, was dry and abandoned at 4,090 feet.

The Pulaski Oil Co.'s No. 10 Bruner, C NW SW SW, Section 36-12-13, got the sand at 2,895-2,907 feet, got a show of water with a 50-bbl. well of high-grade oil showing. It is not complete. The Magnolia Petroleum Co.'s No. 7 Thompson, NE cor. NW, Section 1-11-13, is dry and abandoned at 3,220 feet. The Magnolia Petroleum Co. and Tiger Mountain Oil Co.'s No. 1 Richards, SW cor. SE NE, Section 12-11-14, is a rig.

Foster and Independent Oil Co.'s No. 2 Davis, C SW NW SE, Section 26-9-9, is a rig. The Transcontinental Oil Co. and Independent Oil & Gas Co.'s No. 9 Harjo, C SE NE SW, Section 26-9-9, is spudded in. The Phillips Petroleum Co.'s No. 2 Long, C SE NE SE, Section 27-9-9, has been spudded in.

The Transcontinental Oil Co. and Independent Oil & Gas Co.'s No. 3 Harjo, C NW NE SW, Section 26-9-9, made 10,000,000 feet of gas and 165 bbls. initial production from sand at 3,350-87 feet. No. 6 Harjo, C SW NW SW, Section 26, showed 5,000,000 feet of gas and a spray of oil from sand at 3,340-65 feet. The sand was given a 40-quart shot which did not help it. It made 50 bbls. of oil. The Independent Oil & Gas Co.'s No. 1 Hill, C SE NE NE, Section 27-9-9, was dry and abandoned at 3,465 feet. McCullough's No. 1 Hill, C SW NE NE, Section 27-9-9, was a 20,000,000-foot gas well with no oil showing from sand at 3,400-05 feet. It was not a completion. The Phillips Petroleum Co. has a 650-bbl. well in No. 2 Long, C SE NE SE, Section 27-9-9, from sand at 3,387-99 feet.

Jack Lloyd's No. 1, C NE SE NW, Section 6-3-7, Pontotoc County, was a dry hole at 1,272 feet.

The Humble Oil & Refining Co. has started drilling a test in the SE cor. NE SW, Section 24-5s-5e, Madill district, Marshall County.

In Kay and Noble Counties

The Carter Oil Co. is drilling below 650 feet in No. 1 Ratmyer, C NE NW NE, Section 29-29-1e, Kay County; Comar Oil Co.'s No. 8 Duncan, C NW SE SW, Section 21-29-1w, drilling below 800 feet; No. 9 Duncan, NE cor. SW SW, Section 21, drilling below 800 feet; No. 11 Duncan, SW cor. SE SW, Section 21, a rig; No. 1-B McCormick, NW cor. SW SE, Section 21, drilling below 2,040 feet, in an old well drilling deeper; No. 10 Priboth, NW cor. SE NW, Section 21, building a rig; No. 4 Biddle, NE cor. SW, Section 5-28-1w, a rig. Herbert Oil Co.'s No. 4, SW cor. SE SW, Section 5-28-1w, drilling at 300 feet; same operators' No. 1-W Bechul, C S half SE SW, Section 5-28-1w, rigging up. C W. Moore and others' No. 1, SE cor. NE, Section 31-28-1w, spudded in. The Comar Oil Co.'s No. 2-B McCormick, SW cor. SE, Section 21-29-1w, is a 40-bbl. well at 2,095-2,108 feet.

The Harold Petroleum Co.'s No. 3, NW cor. SW SE, Section 4-27-1w, was drilling below 1,100 feet; No. 3 Case, NE cor. SE SW, Section 4, drilling at 700 feet; Harris & Haun's No. 2 Jameson, NE cor. Section 8-27-1w, drilling at 300 feet; same operators' No. 3 Brown, C SE SW, Section 9-27-1w, drilling at 900 feet; Blackwell Oil & Gas Co.'s No. 4 Cumber, C NW SE, Section 9-27-1w, drilling at 300 feet; Marland Oil Co.'s No. 3-A Moore, SW cor. NW NE, Section 12-26-2w, drilling at 410 feet, a twin well. The Blackwell Oil & Gas Co.'s No. 1 Massey, SE cor. NW, Section 8-27-1w, is a 125-bbl. well at 3,483-90½ feet. The Tidal Oil Co.'s No. 2 Laughlin, C NW SE, Section 8-27-1w, was good for 16,000,000 feet of gas from sand at 3,456-70 feet. It was shut in.

Hartman & Skaer have a rig up for No. 1 Trimmon, NW cor. Section 18-22-2w, Noble County.

Pawnee County Results

In Pawnee County, Frank Billingsley's No. 1-A Redd, NW cor. NE, Section 11-21-5, was abandoned as dry at 3,510 feet. The Prairie Oil & Gas Co. got a 7-bbl. showing in No. 5 Donahue, SW cor. Section 15-20-6, in sand at 3,054-3,126 feet, an old well drilled deeper. It is not a completion. The Josey Oil Co. drilled deeper in No. 2 Scott, NW cor. Section 22-20-6, and at 3,095-3,120 feet got 3,000,000 feet of gas and an oil showing. It was drilling at 3,102 feet. Adamson's No. 6 Sigan, C W half NW SW, Section 32-21-8, was drilling sand at 2,655 feet, the well making 50 bbls. a day. Murray and others' No. 5 Wolf, CEL NE NE, Section 2-20-7, showed a 40-bbl. natural production from sand at 2,736-45 feet, the crew was rigging up to put it on the pump.

Sun Ray Oil Co.'s No. 1 Kimball, NW cor. NE NE, Section 21-20-7, was abandoned at 2,945 feet on account of a hopeless fishing job. It had sand at 2,703-18 feet, with 4,000,000 feet of gas; shale at 2,718-26 feet; sand at 2,726-40 feet, with a hole full of water; sand at 2,909-20 feet, with a 15-bbl. showing of oil and a show of water. The Sun Ray Oil Co. and Adamson's No. 3 Kinney, C W half NE NW, Section 5-20-8, was abandoned at 2,998 feet. Minnehoma Oil Co.'s No. 3 Baker, CEL NE NW, Section 7-20-8, was shot with 60 quarts in sand at 2,363-83 feet, and produced 60 bbls. the ensuing 24 hours. It is not a completion.

The Magnolia Petroleum Co. had a rig up for No. 1 School Land, NE cor. SE, Section 16-22-4. Same company has a rig up for No. 3 Gowling, NE cor. SW SW, Section 9-20-6. Cortez Oil Co. has a rig up for No. 1 Galland, NW cor. SE, Section 36-20-6. Mid-Continent Petroleum Corp.'s No. 5 School Land, SW cor. Section 36-21-7, rigging tools; same company is drilling below 500 feet in No. 15 School Land, SW cor. SE SW, Section 16-20-7, and was spudding in No. 16, NE cor. SW SW, Section 16. Sun Ray Oil Co.'s No. 1-A, NW cor. SW NE, Section 6-20-8, was drilling below 400 feet.

Creek County

The McCulloch Oil Co. abandoned No. 1 Grayson, SE cor. NE SW, Section 24-15-9, at 1,140 feet. The Berry Petroleum Co.'s No. 1-A McNac, SW cor. NE NW, Section 18-15-10, was dry and abandoned at 3,470 feet. Continental Oil Co.'s No. 3 Sewell, NE cor. NW NE, Section 34-15-10, was a failure at 3,183 feet. The Central National Oil Co.'s No. 1, NE cor. SW SE, 3-14-10, was abandoned as dry at 3,206 feet. The Wilcox Oil & Gas Co. No. 2 Dixon, SE cor. NW SE, Section 18-14-10, was shot in sand at 2,876-2,960 feet, but was good for only 10 bbls. It was plugged back to 2,913 feet. The Mid-Continent Petroleum Corp.'s No. 3 Mitchell, NE cor. SW NW, Section 32-14-10, was shot in sand at 3,465-75 feet, and made 205 bbls. the ensuing 24 hours.

Over in the Sapulpa district, T. E. Meary and others are drilling No. 2 Hawkins, SW cor. SE, Section 10-17-11. The Shaffer Oil & Refining Co. has a rig up for No. 4 Wa-Ca-Che, NW cor. NE NE, Section 17-17-11.

C. G. Tibben's No. No. 20 Con-Mei-Sen-Nei, SE cor. NE SE NW, Section 30-15-9, is drilling below 1,000 feet; No. 21, SE cor. NE NE SW, Section 30, was drilling below 860 feet.

In Carter County

In Carter County, the Amerada Petroleum Co. finished a dry hole in No. 3 Postoak, C W half NW NW, Section 34-5s-1e, which was abandoned at 1,349 feet. The Pandem Production Co. has a rig on the ground for a test on the Morris farm, C NW NW SE, Section 8-5s-1w; the Humble Oil & Refining Co. is moving in rig for No. 1 Joy, C SE SE NW, Section 35-5s-1w. The Amerada Petroleum Co. was drilling below

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600 feet in No. 15 Fish, C N half NW SE, Section 28-5s-1e.

Bird Creek and Owasso

The Sands Spring Home's No. 1, SE cor. Section 11-22-12, Tulsa County, was dry and abandoned at 2,089 feet. A. Howard's No. 1, NW cor. SE NE, Section 23-22-12, was dry and abandoned at 1,886 feet. Hawk and others' No. 1, NW cor. SW SE NW, Section 31-21-14, was good for 200,000 feet of gas at 865-75 feet. The Mayfield Drilling Co. got the gas gas at 868-78 feet in its No. 1 Jones, SW cor. NW, Section 32-21-14, but was drilling ahead at 892 feet. J. W. Kuhns' No. 1 Nicholas, C NW SE, Section 3-20-14, is a 1,500,000-foot gasser in Burgess sand at 1,196-1,228 feet.

Late reports from Seminole County showed the following new work started: Tidal-Osage Oil Co.'s No. 1 Noble, C NE NW NW, Section 15-9-6, rigging up; Indian Territory Illuminating Oil Co.'s No. 1 Ida, C SW SW NE, Section 15-8-6, rig on the ground; Plover Drilling Co.'s No. 2, C NE SE SE, Section 7-9-8, rig on the ground; Twin States Oil Co.'s No. 2, C NW SW SW, Section 8-9-8, spudded in; Mid-Continent Petroleum Corp.'s No. 2, C SW NW NW, Section 17-9-8, drilling below 350 feet; Roxana Petroleum Corp.'s No. 1 Johnson, C NW SW NW, Section 17-9-8, rig building; Shaffer Oil & Refining Co.'s No. 2 Jefferson, C SE NE NE, Section 18-9-8, rig up. Magnolia Petroleum Co.'s No. 2 Thomas, C SE SW NW, Section 14-8-7, rig building; T. B. Slick's No. 3 Jackson, C NE NW SW, Section 14-8-7, rig on ground; Dixie Oil Co.'s No. 3 Liggon, C NE NW SE, Section 25-8-7, rig building; Prairie Oil & Gas Co.'s No. 1 Immay, C SW SE NE, Section 25-8-7, rig up. The Magnolia Petroleum Co. is drilling at 600 feet in its No. 2, C NE NE NE, Section 6-7-8.

OKLAHOMA REFINED MARKET UNCHANGED

(Continued from Page 20)

raised and nothing else develops which would warrant refinery increases, those who have bought long over March will suffer losses. Present purchases over the month have been made at approximately the spot market quotations although both refiners and buyers have been hesitant in making these deals.

One important thing to be considered now is the fact that March usually is a heavy storage month for refiners. If trends of previous years are true this year, refiners can expect little in the way of domestic demand during the coming month. Nevertheless the needs of the jobbers have been watched closely and these buyers are known to have low storage.

Whether these jobbers change their present policy of buying only to meet current requirements remains to be seen but it is admitted generally that the March market trend will depend largely on what course these jobbers follow within the next few weeks, barring any extensive export purchases, which now appear unlikely.

Gasoline and Naphtha

Although the general situation was inactive and weak, actual refinery prices of gasoline were not materially lower than a week ago, the principal changes lying in the fact that products were more free. Good U. S. Motor (58-60 437) gasoline still was not offered readily below 10 cents except from a few marketers who quoted 9⅞ cents. However, there was considerably more U. S. Motor gasoline available at 10 cents than there was a week ago. During the week, a few refiners still reports getting as high as 10¾ cents but these were the extreme exception. The 56-58 450 gasoline and the 50-52 450 naphtha were still more inactive than the U. S. Motor gasoline.

Prices of higher gravity gasolines, while lower than a week ago, were slightly firmer Tuesday than they had been. Nevertheless, these products were available when sought with the 60-62 400 grade quoted at 11¾ to 12 cents and the 64-66 375 products at 12½ to 12¾ cents.

Kerosene continued strong and in demand but there were no important changes in actual moving prices. The 41-43 water white grade still was obtainable in limited amounts at 6¾ cents although some refiners found it easy to get 7 cents. The 42-44 water white brought a new high price of 7¼ cents. Distillates the past week began to feel the effect of the strong kerosene market and were slightly stronger. This product which a few weeks ago was a burden to refiners Tuesday brought 4 cents easily on the 38-40 straw grade while the 36-38 distillate moved at 3⅞ to 4 cents.

Natural Gasoline and Blends

Natural gasolines and blended products were practically inactive although the sluggishness was not reflected in important price declines. Tuesday Grade A and Double A were quoted at 9¾ to 10 cents; Grade Double B at 8¾ to 9 cents; B at 9 cents, and Grade C at 8¼ to 8½ cents. Blend prices were slightly lower.

Fuel Oil and Gas Oil

There were no changes in the general fuel oil situation and market prices during the week but gas oil was noticeably firm with some buyers finding difficulty in filling their needs. This latter product, which a week ago was generally weak at 3⅝ cents, Tuesday was scarce at 3¾ cents even for a dark colored grade. The prevailing asking price was 3⅞ cents and some refiners were getting this price. Fuel oil still was offered only as low as $1.15 with higher gravities commanding their relative differentials. The steadiness of the fuel oil price in the face of sluggish demand has been attributed largely to the declining Smackover crude production and the consequent gradual tightening of Smackover fuel, which the past winter and fall has proved a bitter competitor to Group 3 refinery fuel.

Lubricants and Wax

Lubricants and wax also continued steady in price during the week although spot shipments were light. There have been no general changes in these products since the advance of 1 to 2 cents after the crude price increase.

PETROLEUM DIVISION A. I. M. E. ELECTION

The Petroleum Division of the American Institute of Mining and Metallurgical Engineers is expending its activities to cover all lines of petroleum technology. This was reflected in the program at the meeting just concluded in New York which included papers and discussion by tecnologists in the fields of production or geology; production engineering, refining, transportation and economics. It is further reflected in the election of officers, vice chairmen being selected for the main divisions mentioned. Regional sections under the main divisions will also be formed.

F. Julius Fohs, consulting geologist of New York, was reelected chairman of the division. The vice chairmen elected were Dr. C. H. Osmond, consulting engineer, New York; D. S. Bushnell, Buckeye Pipe Line Co., New York; T. E. Swigart, Shell Co. of California; James H. Gardner, Tulsa, and J. E. Pogue, New York. C. P. Watson of the Amerada Petroleum Corp. was reelected secretary.

On a resolution offered by E. De Golyer, president, Amerada Petroleum Corp., a committee of five will be appointed to raise a fund and provide for the award of a medal to be known as the Anthony L. Lucas medal, to be presented for the most meritorious achievement in oil finding or engineering during the year. The medal would be awardable to nonmembers as well as members of the institute, and it was suggested that the selection should be left to some outside party such as the American Petroleum Institute.

VENEZUELAN GRANT

Mexican-Panuco Oil Co. has acquired 750,000 acres in Venezuela, consisting of 30 concessions of 25,000 acres in each in the State of Tachira. This gives the company a total of 1,900,000 acres in Venezuela, of which 750,000 are in the State of Lara and 400,000 acres in Trujillo.

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When it comes to getting information of value to the industry The Oil and Gas Journal believes that ***no news is too costly*** for "The Big Yellow Book" to get and place promptly before its readers.

The hearings before President Coolidge's Oil Conservation Board, attended by the biggest men in the industry, was the biggest item of oil news in years.

The Oil and Gas Journal covered it completely in every detail through its Washington bureau in charge of Mr. Charles E. Kern, publishing the addresses of the opening day by exclusive telegraph and the speeches and discussion at the subsequent sessions in last week's issue reported stenographically.

Readers of The Oil and Gas Journal were thus immediately informed of all that was said at these eventful hearings as if they had been present, a service that could not be rendered by the daily newspapers but was the function of the industry's own publication.

The issue of February 18, containing these reports, was also the Annual Review Number of The Journal, a combination of timely oil information never approached in volume of reading and in value of material.

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Determining Value of Crude Oils

Laboratory Investigation Only Fair Method Both to Refiner and Producer. Four Point Control Test of Gasoline Content Used in California

By George W. H. Reid

In the October 22, 1925, issue of The Oil and Gas Journal, under the title "Gravity as Basis of Crude Valuation," the writer attempted to detail the manner in which the purchase and sale of crude petroleum on a gravity basis was inequitable; not only unfair in many instances to the refiner who buys upon that basis only, but also unjust to many producers of crude oil. The discussion had to do mostly with various oils from the North Texas region.

A like condition, to a certain extent, exists in the marketing and purchasing of crude oils in the very prolific region termed the Los Angeles basin. In the former discussion the writer attempted to warn the Mid-Continent refiner of the fallacy of considering gravity as an index or criterion of quality or gasoline content of a given crude, and through the use of tables compiled and published at that time showed that the only means of securing accurate and unfailing knowledge of a given oil was to analyze that oil according to definite standardized distillation methods. The physical and chemical (within certain limits) analysis of any type of crude petroleum is the only means of determining the value of that crude to the refiner—and the only equitable manner of handling the problem of crude buying and sale which is fair to the producer and to the refiner alike.

The present discussion and tables comprise a study of Los Angeles basin crude types; the method of analysis prevailing on the West Coast, and the price of such grades of crudes as quoted elsewhere in this issue. It will be noted upon examination of this price schedule that the gravity basis of purchasing and marketing crude petroleum has been extended and enlarged upon until in the seeming complication and confusion, each separate degree of gravity represents an individual type or grade of crude, and that each different pool or field produces many grades of crude, each grade in turn having a separate price—and, to all appearances, based upon the gravity of a given grade from a given field.

As previously stated, this price schedule of California crudes at first glance seemingly appears complicated and is somewhat confusing. This is due to the many fields yielding many types of crudes, that is, having numerous percentage yields of gasoline. This type of schedule is necessary in any area where crude oil, though quoted on a gravity basis, is nevertheless purchased upon the basis of laboratory analysis — the only just means of determining the value of the crude to the refiner who must convert it into marketable products, and if possible at a profit.

The prevailing method of crude analysis for gasoline content on the West Coast is that which is commonly termed the "California four point control method" of crude analysis, developed by the Standard Oil of California in 1922. No attempt will be made in the discussion to explain the intricacies or simplicities of the four point method of analysis. Sufficient for the present purpose is the presentation of the directions for making the analysis.

Four Point Control Method

Charge 3,000 to 4,000 cubic centimeters of the crude to be tested into a 1-gallon metal still, correcting the volume for water and sediment content. Fire slowly at first and when stream starts maintain rate of approximately 10 cubic centimeters of distillate per minute, continuing distillation at this rate until a temperature of 500 degrees Fahrenheit is reached in the vapor. Use ice water in the condenser box and in vessel surrounding the receiver. All temperatures to be taken with A.S.T.M. 580 degrees Fahrenheit thermometer.

Let T represent percentage of tops off at 500 degrees Fahrenheit calculated on the basis of net crude oil (charged).

Charge 300 cubic centimeters of the naphtha (tops) obtained above into a 500-cubic centimeter flask identical to that described in Bureau of Mines Bulletin 207, Page 10. This flask is equipped with a fractionating column filled with "Jack" chain. Side tube of flask should be connected into regulation condenser for gasoline distillation as by A.S.T.M. specifications. Rate of distillation should be about three drops per second. Ice water must be used in condenser and in vessel containing receiver.

Note temperature of first drop from condenser coil as well as the following:

Percentage off at 221 deg. F., as A
Percentage off at 284 deg. F., as B
Percentage off at 374 deg. F., as C, or 392 F.
Percentage off at 437 deg. F., as D

Multiply A by 5 times T. Multiply B by 2 times T.

Divide C by .9 and multiply result by T.

Multiply D by 1 times T. Lowest yield indicated, computed on the basis of original crude, is considered to be specification gasoline content of crude.

If it is desired to determine the quality of this gasoline, use a second sample of the naphtha (tops), or start to 500 cut from crude, distilling 300 cubic centimeters same as above, removing yield indicated by calculation and taking Bureau of Mines distillation on gasoline so removed.

In addition to the directions above, Table 1 gives a complete report of the analysis of a sample of 35.1 degrees A.P.I. gravity Athens-Rosecrans crude. The certificate gives results for both U. S. Motor and Los Angeles City specification (90 degrees distilled under 374 degrees Fahrenheit) gasoline. It is of interest to note that the 41.74 per cent of Los Angeles City specification gasoline, which, by the way, governs the major market for basin refiners, is 3 per cent less than the recovery of U. S. Navy gasoline would be, provided the refiner could cut to 90 per cent over at 392 degrees Fahrenheit instead of 374 degrees Fahrenheit.

CERTIFICATE OF LABORATORY TEST

November 30, 1925

Sample of Crude Oil from.... Athens Field .....
Tank No. ..... 80 .....Date.....192....
Delivered to .....Date.....192....
Received from..... Athens Pool .....Date.....192....
Tested for Gasoline Content by the Four Point Method—Tested for M. & B. S. by Centrifuge.
Gravity at 60 degrees Fahrenheit .....35.1 °A.P.I.
M. & B. S. 2.1%

Distillation of Crude Oil

Charge to Finishing Still.....300 c.c.

Gross charge	2000 c.c.	Gross tops at 500° F.	1108 c.c.
Water	42 c.c.	Water	42 c.c.
Net charge	1958 c.c.	Net tops 55.44%	1066 c.c.

Distillation of Tops

	Temp. °F	Amount Distilled	Pct. of Tops	Pct. of Crude	Factor	Gasoline Content in Crude
Start	90					
Off at	221	59c.c.	19.67	10.71	x5	53.55%
Off at	284	127c.c.	42.33	23.05	x2	46.09%
Off at	374	207c.c.	69.00	37.56	+9/10	41.74%
Off at	437	255c.c.	85.00	46.27	x1	46.27%

Content of.... Gasoline ...Los Angeles City Specification Gasoline 41.74%
Remarks.....U. S. Navy Gasoline.....44.77%
Tops at 437 deg. F., crude still .....44.84% net
Tops at 500 deg. F., crude still .....54.44% net
Residuum gravity, 22.0 deg. A.P.I.; flash point, 275 deg. F.; open cup.

TABLE 1—Type of record extensively used on West Coast for crude analysis work employing the four point control method. Test above—Athens crude, for Los Angeles City and U. S. Navy gasoline content.

TABLE NO. 3

Source (Field)	A.P.I. Gravity	Quoted Price	Pct. BS&W	Gasoline 20% Under 221°F.	50% Under 284°F.	90% Under 374°F.	L.A.City Pct. 437°F. E. P.
Signal Hill:	22.6	1.14	7.4	19.15	18.60	17.92	20.69
	23.8	1.18	.6	18.18	20.26	20.14	22.93
	24.1	1.22	1.5	22.30	18.78	18.98	21.72
	24.1	1.22	1.8	21.90	20.16	20.08	22.74
	24.2	1.22	4.2	18.10	19.60	19.97	22.45
	24.2	1.22	1.8	21.25	21.16	19.53	22.11
	24.2	1.22	3.0	24.30	22.68	20.17	23.77
	24.2	1.22	0.4	9.50	16.82	18.40	21.35
	24.3	1.22	0.1	13.90	18.58	19.36	22.71
	24.4	1.22	1.6	24.60	22.72	20.29	22.90
	24.7	1.22	2.0	25.35	24.04	21.63	24.04
	24.9	1.22	2.0	21.55	20.12	18.87	21.56
	25.2	1.26	0.4	9.50	16.82	18.40	21.35
	25.6	1.26	3.4	27.10	23.44	22.68	25.00
	26.1	1.30	2.0	28.90	26.66	23.94	26.44
	28.5	1.38	0.2	26.95	28.68	27.27	31.20
Average	24.7	1.22					20.41
Torrance:	16.4	0.90	3.6	9.25	10.80	12.40	15.35
	18.7	.98	6.3	8.00	8.94	9.47	12.46
	19.8	1.02	4.1	14.40	11.94	12.25	15.04
	23.0	1.18	3.2	13.75	17.46	17.78	21.69
	24.1	1.22	0.4	21.90	19.24	18.62	21.33
	24.5	1.22	1.0	23.70	19.16	18.82	21.78
	24.6	1.22	0.6	20.00	18.10	18.31	21.33
	24.8	1.22	0.8	22.05	18.62	19.06	22.34
	25.0	1.26	0.6	22.75	20.68	19.61	22.39
	23.0	1.22	0.2	13.25	17.00	16.96	20.47
Average	22.3	1.14					16.32
Santa Fe Springs:	30.6	1.40	0.5	13.35	18.40	25.19	30.80
	31.0	1.46	0.4	30.85	28.76	29.74	33.84
	34.6	1.68	0.0	55.20	41.28	35.73	39.36
Average	32.0	1.52					30.22
Athens-Rosecrans:	31.8	1.52	4.5	22.85	28.02	30.49	35.70
	33.1	1.64	4.9	46.10	37.58	37.42	42.37
	33.3	1.64	0.4	30.00	31.68	34.44	40.00
	33.4	1.64	4.0	40.45	42.06	39.54	44.22
	33.6	1.64	2.2	31.65	39.74	37.52	42.91
	34.5	1.70	0.2	39.50	36.96	35.20	40.42
	34.5	1.70	0.8	43.30	39.48	36.08	39.96
	34.9	1.70	0.2	36.70	39.64	38.24	42.71
	36.3	1.84	0.5	57.10	48.08	45.19	49.68
	36.6	1.84	0.1	48.75	43.30	42.03	46.80
	40.5	2.16	0.3	80.30	64.68	54.02	57.20
	41.0	2.24	0.2	88.85	63.00	55.50	58.73
Average	35.3	1.76					40.48

TABLE NO. 2*

Source (Field)—	Gravity (Cor. for %BS&W)	Price Quoted Jan. 28	Navy Spec. Gasoline Pct.
Long Beach:	21.7	1.10	8.3
	22.4	1.14	13.9
	25.3	1.26	21.5
	26.2	1.30	25.3
	28.9	1.38	31.0
Average	25.7	1.26	20.0
Santa Fe Springs:	30.6	1.40	23.2
	32.7	1.52	29.4
	33.4	1.60	36.7
	34.3	1.68	38.8
	35.9	1.76	40.2
Average	33.4	1.60	33.6
Inglewood:	13.5	0.85	00.7
	17.7	0.94	8.4
	19.9	1.02	11.0
	22.3	1.14	14.5
	24.5	1.22	19.0
Average	19.5	1.03	10.7
Huntington Beach:	14.5	0.85	3.0
	19.1	1.02	4.1
	20.7	1.06	15.7
	25.8	1.26	25.5
	25.9	1.26	26.5
	29.0	1.42	29.1
Average	22.5	1.14	17.3
Dominguez:	29.8	1.42	28.8
	30.1	1.46	29.2
	31.7	1.52	35.5
	32.3	1.58	35.7
Average	30.9	1.52	32.3
Torrance:	15.0	0.87	01.9
	22.1	1.14	11.2
	25.0	1.26	23.2
	26.4	1.30	23.9
Average	22.1	1.14	15.0
Rosecrans (Athens):	36.7	1.84	43.2
	37.2	1.92	29.8*
	38.6	2.00	40.6
	41.0	2.24	49.1
	42.1	2.30	59.1
Average	39.1	2.08	44.3
Montebello:	18.9	0.85	1.0
	21.3	0.89	3.7
	23.5	0.94	3.9
	26.2	1.03	8.4
	26.8	1.03	7.9
Average	23.3	0.94	4.6
Whittier:	17.4	0.85	0.8
	19.3	0.85	3.2
	21.1	0.89	3.5
	23.1	0.94	7.9
Average	20.2	0.87	2.8
Coyote:	20.0	0.88	1.9
	24.5	1.12	8.7
	26.1	1.24	14.1
	28.8	1.36	27.2
	30.7	1.48	32.8
	32.3	1.48	36.2
Average	27.0	1.30	20.1

*Acknowledgement to Howard G. Vesper for crude gravity and gasoline content as in above table, from paper read recently before American Chemical Society, Los Angeles.

In Table No. 2 is incorporated the characteristics of major importance, of 4 to 6 samples of crudes produced from 10 of the fields of the Southern California district. The table is of interest in that the gravity and gasoline content of crude from 10 major pools are presented, along with the price quoted for

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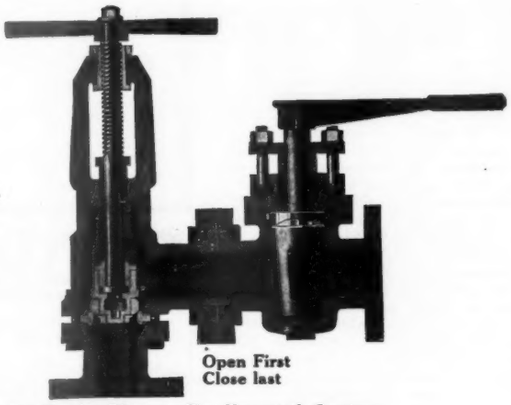

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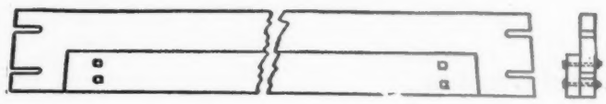

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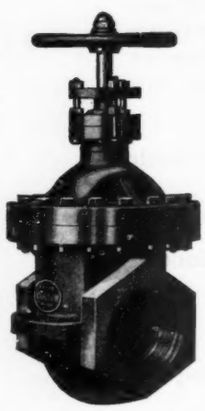

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cac separate grade. Some definite information as to the type of crude produced in different sections of the basin is given. A study of the table shows that certain crudes are priced relatively high when considering the content of U. S. Motor gasoline, especially considering that the refiner will very likely distill only Los Angeles City gasoline from it, thus leaving some U. S. Motor in his kerosene. But it must be born in mind that the wide awake refiner will analyze the crude in this laboratory before it is purchased, or, it is evident, he will of necessity soon shut down. For example:

Athens	36.7 grav.	$1.84 U. S. Motor	43.2%
Athens	37.2 grav.	1.92 U. S. Motor	29.8%
Athens	38.6 grav.	2.00 U. S. Motor	40.6%

Gasoline Content Varies

Table No. 3 presents an orgy of various gravities (grades) prices, and four point analyses. Column No. 2 from the right hand side, "Los Angeles City gasoline, 90 per cent under 374 degrees Fahrenheit," is of the most importance, speaking in terms of gasoline yield, for it is this specification to which the refiner in this region, and supplying this territory, must cut or market his gasoline out of the city and the territory affected by the city's gasoline legislation. Under Signal Hill crudes we find 10 samples of 24 gravity showing a comparatively wide variation in gasoline yields, namely, from 18.4 per cent to 21.6 per cent gasoline. All for $1.22 per barrel. Futher, two of these samples show 9.5 per cent and 13.9 per cent at 221 degrees Fahrenheit, which indicates that they are stripped of light components (vapors) either by weathering, storage, or dehydration. This scarcity of light ends is of much importance, for a crude yielding no light gasoline will, it follows, yield a very heavy gasoline, and that heavy gasoline, of necessity, must be blended back to marketable gravity and initial boiling point.

This involves the use of natural gasoline at a price on the (West Coast) of 3 to 5 cents more than the gasoline (in this case blending stock) is worth on the market. Here is an example of the economy of maintaining a well equipped, efficient laboratory, to avoid the purchase of even 1,000 bbls. of crude that has lost or been stripped of its light constituents, will save the cost of laboratory maintenance for many days.

Examples of this same type of crude appear also in the table in the Torrance and Athens sections. A notable example of the failure of gravity to indicate much of value as to quality is presented in each distillation record of the 12 Athens samples recorded.

Now 41 gravity crude with 55.5 per cent gasoline is unusual. The entire production from the Athens section is unusual, however, as shown in Table No. 2, Athens crude, 37.2 gravity $1.92, 29.8 per cent gasoline. Table No. 3, Athens crude, 36.6 gravity $1.84, and 42.03 per cent gasoline.

The importance of this discussion rests entirely in the fact that price based upon gravity of crude oil means very little. The old flat rate schedule meant much less. The entire problem from the standpoint of the refiner is solvable only through the laboratory analysis and purchase based upon that analysis. The refineries of Southern California which the writer has visited all have well-equipped laboratories and the chemists analyze the crude petroleum regularly, both before and after purchasing. The crude that does not meet the refiners' requirements, etc., is not purchased, or, not purchased at the price quoted as based on its gravity.

The refiner, small or large, that buys his raw product without preliminary inspection and analysis and buys on prices based upon gravity as an indication of quality and gasoline content, is continually risking great losses, which risk can be eliminated by crude analysis prior to purchase.

GEOPHYSICAL METHODS DISCOVER NEW DOMES

(Continued from Page 65)

coast look better and also lends a more promising aspect to the vast acreage be-

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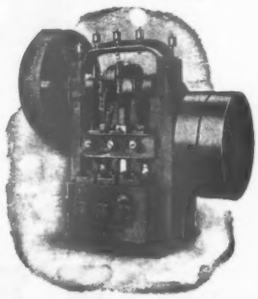

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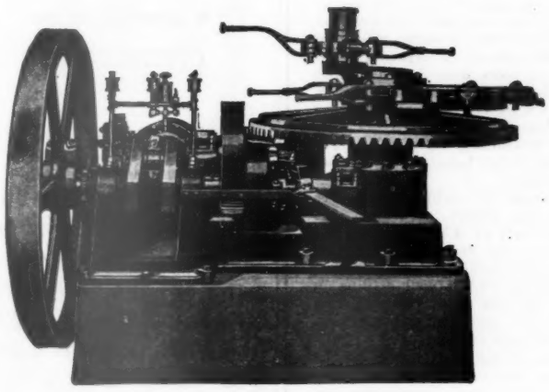

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Lockport Pool

The Lockport Pool, Calcasieu Parish, Louisiana, added two additional wells to its productive list during the year, when the Vacuum Oil Co.'s Nos. 3 and 4, were brought in respectively for 1,205 bbls. at 4,402 feet, and 2,000 bbls. from 4,338 feet. These brought the total number of producers to three, the discovery well No. 1 Miller, having been brought in during 1924, for 5,000 bbls. at a depth of 3,876 feet. Ten dry holes were drilled around the productive trio, two tests attaining depths of over 6,000 feet, and another pair going below 5,000 feet in the vain attempt for production. The other failures were all drilled below 4,000 feet before abandonment.

The Pure Oil Co. drilling at Sweet Lake, Calcasieu Parish, Louisiana, secured a gas well at 4,503 feet, and is now continuing the development.

Geophysical exploratory work has practically displaced wildcat well drilling in the search for new salt domes in this area. The new scientific methods have proved much more efficient.

Production on the Gulf Coast for the past year has been maintained in a very satisfactory manner, amounting to: Texas, 26,114,402 bbls.; Louisiana, 4,840,643 bbls; a total of 30,955,045 bbls. This production has been maintained from old settled production, the only new flush production obtained during the year being the oil yielded by South Liberty during the first part of the year.

TERRITORY OPENED IN OKLAHOMA AND KANSAS

(Continued from Page 66)

bbls. an hour and on November 8, the well produced 1,221 bbls. Twenty-nine wells were under way in this pool by the end of the year. There is a 3,480-foot dry hole a half mile northwest of the discovery well, in the NE SE SE, Section 22, so the pool is limited, apparently, in that direction.

In December, Morgan & Flynn got oil in No. 1 Ingram, NW NW SE, Section 10-9-5, Seminole County. The sand was found at 3,558 feet, and drilled into 2 feet. The well made one flow of 68 bbls., and, at last report, was swabbing about 70 bbls. per day. This well is westward in advance of other production in the region and is important if it proves to be the marker of a pool.

On December 18, the Magnolia Petroleum Co. found production in the Wilcox sand at 4,096 feet in No. 1 Harjo, NW NW, Section 5-7-5, in the extreme southern edge of the Wewoka Pool. At 1 foot in the sand the well flowed 4,000 bbls. per day. It is yet too early to predict the significance of this discovery, but it has the appearance of a marker of a major pool.

New Territory Opened in Kansas

The first week of 1925 witnessed the completion of a good well in Cowley County, the Carter Oil Co.'s No. 1 Waite, NW SE, Section 19-32-3, found production in a sand at from 2,602-14 feet, and made 950 bbls. the first day. The T. B. Slick wildcat well, No. 1 Carson, SW NE, Section 19-32-3, had passed up this sand after reporting a show, but got deeper oil. The Slick well was carrying a hole full of water at the depth of 2,600 feet. The pool proved to be limited in extent.

In the first week of February, the Roth Oil Co. and others completed a well east of the Olson Pool, in Cowley County. This well, NW NE, Section 4-30-8, found the sand at from 2,100-31 feet, and, after being shot, made 450 bbls. initial production.

Later in February, the Vickers Petroleum Co. opened the Vickers Pool with No. 1 Brainard, NE NE, Section 3-25-3, Butler County. The sand was found at from 2,718-25 feet, and the well had an initial production of 50 bbls., naturally.

In March, Connell and others drilled in No. 1 King, NE SW SW, Section 17-24-4, Butler County. The sand was found

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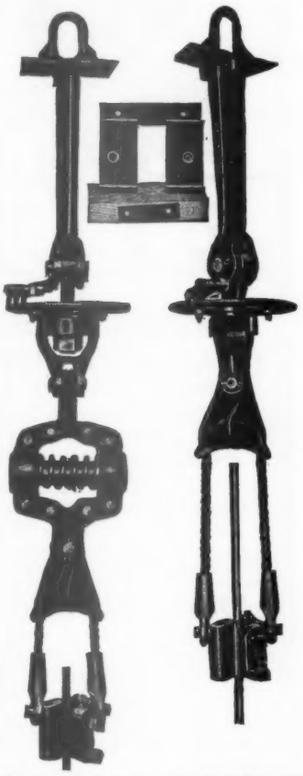
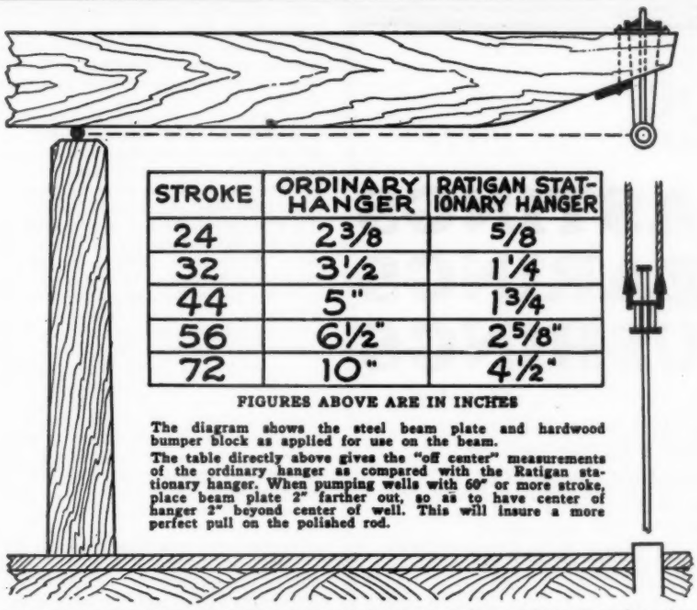


No. 15 Sucker Rod Rotor with No. 1 Shock Absorber attached and No. 6 Polish Rod Grip.

No. 15 Sucker Rod Rotor and No. 6 Polish Rod Grip



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32	3 1/2	1 1/4
44	5"	1 3/4
56	6 1/2"	2 5/8"
72	10"	4 1/2"

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The table directly above gives the "off center" measurements of the ordinary hanger as compared with the Ratigan stationary hanger. When pumping wells with 60" or more stroke, place beam plate 2" farther out, so as to have center of hanger 2" beyond center of well. This will insure a more perfect pull on the polished rod.

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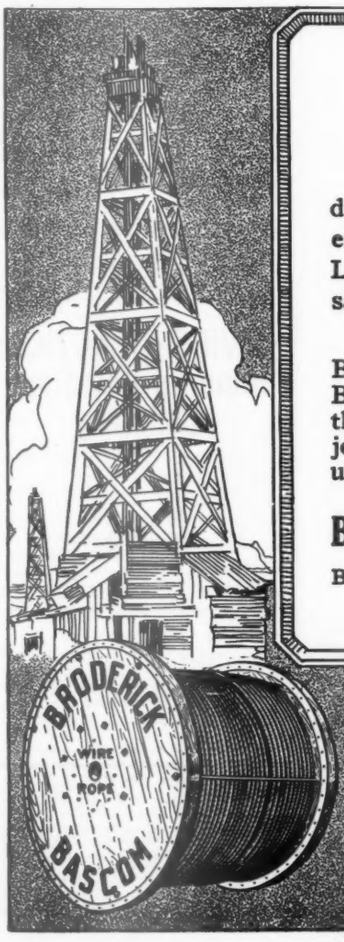

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at 2,544 feet, and drilled in 2 feet. The well made 545 bbls. the first 24 hours. The pool must be rated as a disappointment to date, as five dry holes have been drilled around the discovery well, and only two other producers have been completed.

On June 9, the Prairie Oil & Gas Co. completed No. 1 McCutcheon, SE cor. SE NW, Section 34-34-2e, in a sandy break in the Mississippi lime at from 3,480-87 feet, and got an initial production of 50 bbls. of oil and some water. One other producer had been drilled in near the McCutcheon by the end of the year. A dry hole, half a mile to the south, and another, half a mile to the southeast, limits the possibilities in those directions.

On June 16, the Marland Oil Co. completed No. 1 Thieson, SW SE SE, Section 22-34-2, at a depth of from 3,486-3,504 feet in a chat formation. The well made 100 bbls. of oil and 40 bbls. of water. One other oil well has been completed near the Thieson, to date. There are several gas wells to the east and northeast. Deep dry holes to the north and northwest limit the likely territory in those directions. The production may extend southward.

In July, the Mid-Kansas Oil & Gas Co. found oil in the Wilcox sand in a well, in the northwest of Section 3-32-8, Chautauqua County. The sand was topped at 3,110 feet, and the oil grades 38 degrees Baume gravity. No gauge of production was reported. No other wells have been completed near this discovery to the end of 1925.

On August 11, the Vickers Oil Co.'s No. 1 Powell, NW NE, Section 12-24-3e, was completed for 310 bbls. initial production, from a sand from 2,484-87 feet. This opened a small pool.

Cowley County

On August 11, the Trees Oil Co. drilled in No. 1 Lewis, NW NE, Section 28-31-4, Cowley County. The sand was found at from 2,400-22 feet, and the well made 95 bbls. of oil and 20 bbls. of water. This discovery has been a disappointment so far. The south offset and diagonal offset to the northwest were dry. Something may be found to the north or east. The north offset is now drilling.

In August, the Roxana Petroleum Corp. drilled No. 1 Rutter, SW SE NW, Section 21-33-2, to the top of a sand at 3,300 feet. The well has considerable oil in the hole, but has never been completed. It is impossible to say what may be developed around this well. At present it can only be classed as a potential area for a pool.

Late in August, an important extension to the old Winfield Pool in Cowley County was discovered by the J. A. Hull Co.'s No. 1 Bartlow, SW NW of Section 19-32-5. This well, a half mile east of production, had 80 feet of sand at the Burbank or Bartlesville horizon, from 2,980-3,060 feet, with 2,000,000 feet of gas, and flowed 175 bbls. of oil.

To the end of the year six oil wells and one gas well had been completed, and four wells were drilling around the discovery well.

Early in September, O. A. Boyle and others, drilled in a wildcat discovery, NE NW SE, Section 22-27-7, in Butler County, southeast of El Dorado. The sand was found at from 2,704-11 feet. Three oil wells have been completed to the end of the year, and 12 wells are drilling. The area is limited to the north by a dry hole, half a mile away, and by another, half a mile to the east. There are no negative wells for some distance in other directions.

In October, the Independent Oil & Gas Co. and the Atlantic Oil Producing Co. completed what is possibly a Wilcox sand well in No. 1 Sensebaugh, SE SW, Section 15-28-7, in a formation topped at 3,082 feet. The well made 250 bbls. a day. All four direct offsets are now drilling.

Lyon County

Late in October, J. W. McCullough and others drilled in a wildcat well, NW NE, Section 25-21-10, just across the line in Lyon County, in the "Golden Lane" belt,

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extending production over from Greenwood County. The well filled up with oil, but did not have enough gas to make it flow. The well was pumped for 12 hours and produced 560 bbls. of oil, and yet the hole remained full of oil. Apparently the pressure behind the oil just balances the column of oil in the hole. The well has every indication of being an important extension of the "shoestring" fields into Lyon County.

About the middle of December, Pryor & Lockhart, and others, drilled in No. 1 Crosby, NE SW, Section 23-22-9, opening another "shoestring" pool, extending production 2 miles northward from Greenwood County into Southeastern Chase County. The sand was found at from 2,398-2,427 feet, with about 90 bbls. production on the swab. There are dry holes within a mile or so of this well in nearly every direction, so it seems probable the pool will be small in areal extent.

In December, Yonkers, and others drilled in No. 1 Walston, NE NW, Section 2-21-6, Rice County, making 75 bbls. of 36 degrees Baume gravity oil, from a sand from 3,409-32 feet. This well, though small for the depth, is some distance from any other production and will probably stimulate prospecting in the area.

On December 20, Richey & Moore brought in an important discovery in No. 1 Pixley, SW SE, Section 34-21-10, Lyon County. This discovery is another extension of the so-called Little Golden Lane of the "shoestring" pools across the Greenwood County line into Lyon County. The well flowed 1,600 bbls. a day, from 25 feet of sand, at a depth of from 2,169-94 feet.

Elwell, and others made what appears to be an important discovery in No. 1 Baird, SE SE, Section 17-34s-3e, in Cowley County. The sand was topped at 3,363 feet, and the hole filled up with oil. The well had not been completed at the end of the year.

ARKANSAS-LOUISIANA DEEP WELL DRILLING

(Continued from Page 70)

ducer of the usual type. It is some 20 feet higher than the other wells of the original group and may be significant of possible extension of known producing territory and also of getting on to another structural "high."

Considerable development has been excited by the discovery of the Urania Field. A new region is now open for exploration and development with evidence to justify hope for success in basal members of the Claiborne in this general region.

The Nacatoch sand probly lies too deep to be of economic interest in the Urania district. The area lies some distance south of the Angelina-Caldwell Flexure, where it is necessary to go below 1,500 feet to reach the lower part of the Claiborne. Following this there would be at least 2,000 feet of Wilcox and over 800 feet of Midway and Arkadelphia. This would place the Nacatoch about 4,300 feet deep. The Nacatoch thins and disappears in going southward, so it is questionable whether it would be present even at that great depth.

Considerable interest is being shown in additional tests that will be drilled on the west flank of the Monroe gas dome. Louisiana operators have been striving for years to discover an oil yielding sand, supposed to lie somewhere below the Chalk Rock, which constitutes the gas reservoir there. Efforts so far have been unsuccessful, but the search continues. Until recently comparatively little deep drilling has been done in Louisiana and Arkansas, but there are probably more deep tests now in progress in these two states than during the past 5 years.

Outlook for 1926

Although predicting future oil production is a matter of conjecture, barring the discovery of new productive areas, the only sources from which production may be increased are found in the deeper

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untested sands on the known structures now producing from shallower sands.

In the Arkansas district, 1926 production will be considerably less. Louisiana will show a smaller actual percentage of decline. Total production will continue to fall off during 1926 even though there is much drilling.

Judicious "wildcatting" should undoubtedly result in the bringing in of new pools of value to both States.

PROSPECTS FOR 1926 PRODUCTION OUTLINED

(Continued from Page 68)

to contain formations equivalent to those of the important California fields.

Oklahoma-Kansas

The great factors in maintaining production in Oklahoma and Kansas are:

1. The production backlog of recent pools;
2. Possible major pool developments from the small number of recent discoveries, already mentioned;
3. The finding of new Wilcox pools.
4. New pools west and south of the present producing reas;
5. The possibilities of new pools in the red bed and Cretaceous-covered areas further west in Kansas and Oklahoma.

There is room for the discovery of a number of Wilcox horizon pools in the Oklahoma-Kansas fields, but the outlook for material production from such pools in 1926 is relatively small. The best promise is that of production from several small Wilcox pools and possibly one of some size in the Wewoka area. The classification of Wilcox territory, by Luther White, should be most helpful in restricting search to the more profitable territory. Much of the area has the Arbuckle siliceous lime and the Hunton lime, neither of which will repay tests in search of porous horizons therein, except possibly where marked faulting or other special conditions exist.

Texas, Outside Gulf Coast

Texas (other than the Gulf Coast itself) represents the most important of our oil reserves and it is here that increased production must be sought. This district yielded more than 11 per cent increase over 1924 and 15 per cent more than in 1923. The outlook for several additional worthwhile wildcat completions in 1926 is good, though it will be 1927 before their influence should be felt. In the Amarillo district, additional production is being hastened by new pipe arrangements and quite a little new production may be expected, with an average initial of 200 bbls. per well.

Northeast Texas gives promise of renewed activity and one or more new pools are among the probabilities for 1926 and early 1927. In Southwest Texas a number of pools of small area will continue to be developed.

With the large amount of new leasing and drilling activity centered in Texas at this time, an increase in production is to be expected, though the Mexia fault zone, which has offered the great flush production for several years past—except for possibilities of its southwest extension—must be replaced by West-Central Texas and Northeast Texas for big gusher production. In 1926 North Central and Gulf Coast will vie with each other for first place, with the Mexia district third and Western Texas fourth place.

Louisiana-Arkansas

In Louisiana, the only discovery of some possible import was the Urania Field—significant chiefly because of gusher production from the Claiborne (Tertiary). Deep drilling at Cotton Valley and Pine Island has yielded wet gas but no oil. A test, 5,500 feet, at Bull Bayou, offers nothing yet. Deep sand possibilities for Haynesville remain as yet unproven—and this is a possibility for 1926. Both Louisiana and Arkansas should yield further pools for the insistant wildcatter, but none of consequence is in sight.

Gulf Coast

The real significance of the new domes located in the Gulf Coast will not make itself felt until well toward the close of 1926 and possibly not until 1927. De-

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velopment of oil, even after a dome is found, is slow and fraught with many hardships. The use of the new double core barrel and improved development and production methods will facilitate production but, as many problems remain to be solved, both time and great expense continue necessary to develop these rich pools. The new geophysical methods will undoubtedly see the location of a number of new domes in 1926, and the full effect of these new discoveries will probably not be felt by the industry before, possibly, 1929 or 1930, when a new production peak will be reached here and when the decline from other fields will need this offset, together with Venezuela and other imports, to supply American demand. The Gulf Coast unquestionably offers one of the great potential sources of American supply.

Rocky Mountain District

The Rocky Mountain district, which produced 35,500,000 bbls., according to Fred Wood, declined 26 per cent from 1924. In January, 1926, oil was found at Moab, Utah, the extent of which is as yet unknown. This gives promise of a fair-sized high-grade pool, and there is chance for others nearby. Mr. Wood believes a 10 per cent decline for 1926 is all that need be expected from this group of States and with this we are in accord. The opening of the 50 or more Lakota sand wells, capped at Salt Creek, is primarily depended upon to help maintain this production.

The development of extensions or new pools of the Arestia type, in eastern New Mexico, are among the more worthwhile possibilities of the future. Craig and Fort Collins are the principal Colorado pools, but even with the increase at Fort Collins and Wellington, Colorado production will, in all probability, decline.

TO EXTEND OPERATIONS IN SOUTHERN TEXAS

SAN ANTONIO, Tex., Feb. 20.—K. & S. Corp., with a capitalization of $2,000,000, has been incorporated in Texas to operate as a producing oil company. The incorporators are A. L. Kitselman of Muncie, Ind., and Edward St. Albans, who have been operating in the Laredo territory under the firm name of Kitselman & St. Albans. The concern has considerable production in the Mirando territory, in the Jim Hogg County Pool, amounting to 6,462 bbls. for the month of December.

The new company has retained Frank R. Campbell, who has made many locations for wells in the Laredo territory, as its geologist and has announced a plan to extend its operations in South Texas. One well will be drilled on territory near the Piedras Pintas salt dome well in Duval and 30 or 40 wildcat tests will be made in the wildcat areas around the Mirando Field.

Edward St. Albans will be in active charge of the operations. He came to Laredo from California. Mr. Kitselman is a wire and steel mill owner and fence manufacturer at Muncie, Ind. Mr. St. Albans is president, Mr. Kitselman vice president, George Sturgis, secretary and these three and T. C. Mann and Claude Hamilton, both of Laredo, are directors. Jean Patton, formerly with the Sinclair Oil So., field superintendent.

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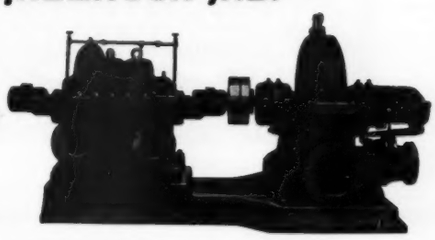

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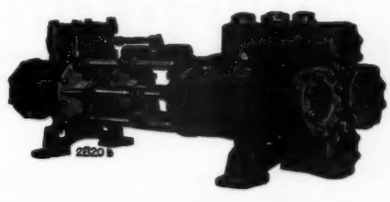

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Thursday afternoon, Friday morning, and all day Saturday will be devoted to technical sessions. On Friday afternoon there will be a social gathering, ladies' bridge, and a golf tournament at the Brook Hollow Country Club. In the evening the annual banquet will be held, followed by an entertainment and dance.

Every effort has been made to arrange for a technical program which will be appropriate to the advances now in progress in geology applied to the finding and production of oil. Of particular interest will be the symposium on geophysical instruments, such as the torsion balance and the seismograph, which are yielding important results in the location of subsurface structures. Papers on this subject will be read by Drs. George Steiner, C. A. Heiland and J. C. Karcher, Burton McCollum and others.

A symposium on the origin of oil will be led by Dr. David White, Alex McCoy, G. Clark Gester, Earl Trager, Prof. F. M. Van Tuyl and others.

The value of microscopic palentology as an aid to correlation of strata in subsurface problems will be discussed in contributions by many of the active workers along this line of study, including Dr. J. J. Galloway, Dr. J. A. Cushman, Messrs. Seashore, Aronson, Trager, Stiles, Prof. H. V. Howe and many others.

A symposium on core drilling will include papers by John Suman, H. G. Officer, etc.

Titles for papers on local or special topics include:

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Spang & Co.

Balls and Seats—
Axelson Machine Co.
Hough, Charles N., Mfg. Co.
Norris Brothers, Inc.
Northrup Equipment Co.

Balls—Bronze—
Atlas Ball Co.
Hoover Steel Ball Co.

Balls—Steel—
Atlas Ball Co.
Hoover Steel Ball Co.
Strom Steel Ball Co.

Band Wheels—Steel—
International Derrick & Equipment Co.
Marion Mch., Fdy. & Supply Co.
Moore, Lee C. & Co., Inc.
Parkersburg Rig & Reel Co.

Barrels—
Petroleum Iron Works Co.

Batteries—
National Carbon Co.

Bearings—Roller—
American Roller Bearing Co.
Timken Roller Bearing Co.

Bearings—Thrust—
Timken Roller Bearing Co.

Belting—
Bridgeport Machine Co.
Fenwick-Reddaway Mfg. Co.
Frick-Reid Supply Co.
Imperial Belting Co.
International Supply Co.
Lufkin Foundry & Machine Co.
Murray Rubber Co.
Stanley Belting Corp.

Belting—Rubber—
Bovaird Supply Co.
Goodyear Tire & Rubber Co.
United States Rubber Co.

Belt Lacing—
Flexible Steel Lacing Co.

Bits—Disc—
U. S. Tool Co.

Bits—Fish Tail—
Federal Supply Co.
Lucey Mfg. Corp.

Bits—Rotary Disc—
Hughes Tool Co.

Bits Rotary Rock—
Hughes Tool Co.
Reed Roller Bit Co.

Bit Steel (See Steel—Bit)—

Bleaching Powder—
Mathieson Alkali Works, Inc.

Blow-off Valves (See Valves)—

Blowout Preventer—
Regan Forge & Engineering Co.
Stearns-Roger Mfg. Co.

Blowpipes—
Oxweld Acetylene Co.

Boiler Feed Pumps (See Pumps)

Boilers—Horizontal Return Tubular—
Kewanee Boiler Co.
Vogt, Henry, Machine Co.

Boilers—Oil Country—
Bovaird & Seyfang Mfg. Co.
Bridgeport Machine Co.
Coatesville Boiler Works.
Continental Supply Co.
Donovan Boiler Works.
Frick-Reid Supply Co.
International Supply Co.
Kewanee Boiler Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Pattin Bros. Co.
Republic Supply Co.
Titusville Iron Works.

Bolted Tanks (See Tanks)—

Bolts and Nuts—
Sheffield Steel Corp.

Bolt Threading Die Heads (See Die Heads)—

Bolt Threading Machines—
Landis Machine Co.
Oster Mfg. Co.

Bottles—Glass
Illinois Glass Co.

Box and Pin Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Braces—Tool—
Dunn Mfg. Co.

Break Out Tongs (See Tongs)—

Briquetting Machines—
Simplex Equipment Co.

Bronze Valve (See Valves—Brass and Bronze)—

Buildings—Metal, Sectional (All Types)—
Austin Co.
Braden Co.
Butler Mfg. Co.
International Derrick & Equipment Co.
Marion Mch., Fdy. & Supply Co.
Swartwout Co.
Truscon Steel Co.

Bulk Station Tanks (See Tanks)

Bull Ropes—
Ajax Rope Co., Inc.
Columbian Rope Co.
Wall Rope Works, Inc.

Bull Wheels—Steel—
International Derrick & Equipment Co.
Marion Mch., Fdy. & Supply Co.
Moore, Lee C. & Co., Inc.
Parkersburg Rig & Reel Co.

Burners—Gas—
Okmulgee Boiler & Welding Works.

Burners—Oil—
Baker Motors, Inc.
Continental Supply Co.
Reid, Joseph, Gas Engine Co.

Bushings—Rotary Drive—
Wilson Oil Tools Corp.

C

Cable Bit Steel—
Andrews Steel Co.
Federal Supply Co.
Heppenstall Forge & Knife Co.

Cables—Drilling, Manilla—
Ajax Rope Co., Inc.
Columbian Rope Co.
Frick-Reid Supply Co.
Wall Rope Works, Inc.

Cables—Steel—
Ajax Rope Co., Inc.
American Cable Co.
Black Steel & Wire Co.
Broderick & Bascom Rope Co.
Continental Supply Co.
Frick-Reid Supply Co.
Hazard Mfg. Co.
Leschen, A. & Sons Rope Co.
Longhart Supply Co.
Murray Tool & Supply Co.
National Supply Co.
Republic Supply Co.
Wickwire-Spencer Steel Corp.

Calf Rope—
Ajax Rope Co., Inc.

Calf Wheels—Steel—
International Derrick & Equipment Co.
Moore, Lee C. & Co., Inc.

Cannon—Oil Field—
Braden Co.

Cans—Water—
Gott, H. P. Mfg. Co.

Capping Steel—
Andrews Steel Co.

Carbon—Black Diamond—
Diamond Drill Carbon Co.
Patrick, R. S.

Cars—Tank—
American Car & Foundry Co.
General American Tank Car Corp.
Shippers' Car Line, Inc.

Cars—Tank, Leased—
American Car & Foundry Co.
North American Car Co.
Shippers' Car Line, Inc.

Casing—
Bovaird Supply Co.
Continental Supply Co.
Jarecki Mfg. Co.
National Supply Co.
National Tube Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.

Casing—Wrought Iron—
Byers, A. M. Co.
Reading Iron Co.
South Chester Tube Co.

Casing Elevators (See Elevators, Casing and Tubing)—

Casinghead Gasoline Equipment—(See Natural Gasoline Plant Equipment)—

Casing Heads—
Dresser, S. R. Mfg. Co.
Kansas City Hay Press Co.
Oil Well Improvements Co.

Casing Lines—
Ajax Rope Co., Inc.

Casing Packers (See Packers)—

Casing Pulleys (See Pulleys)—

Casing Shoes—
Baker Casing Shoe Co.
Bartlesville Supply Co.
Bridgeport Machine Co.
Guiberson Corp.
Oil Well Supply Co.

Casing Tongs (See Tongs)—

Castings—Alloy Steel—
Ohio Steel Foundry Co.
Sivyer Steel Casting Co.

Castings—Brass—
Progressive Brass Mfg. Co.

Castings—Chrome Nickel Steel—
Sivyer Steel Casting Co.

Castings—Corrosion Resisting Non Ferrous—
Hills-McCanna Co.

Castings—Electric Steel—
Ohio Steel Foundry Co.
Sivyer Steel Casting Co.

Castings—Grey Iron—
Ajax Iron Works.
American Car & Foundry Co.
Cunningham Co.
Gaso Pump & Burner Mfg. Co.

Castings—Steel—
Ajax Iron Works.
Chicago Steel Foundry Co.
Nugent Steel Casting Co.
Ohio Steel Foundry Co.
Sivyer Steel Casting Co.

Cement—Fire and High Temperature—
Botfield Refractories Co.

Cement—Portland—
Monarch Cement Co.

Centrifugal Pumps (See Pumps)

Chain Pipe Tongs (See Tongs)—

Chains—Conveying—
Chain Belt Co.
Link-Belt Co.

Chains—Oil Well—
Chain Belt Co.
Link-Belt Co.
Lufkin Fdry. & Machine Co.

Chains—Power Transmission—
Chain Belt Co.
Link Belt Co.

Check Valves (See Valves)—

Chemical Glassware for Laboratory Use (See Glassware)—

Chemical Treatment Crude Oil Emulsion—
Barnickel, Wm. S. & Co.

Chlorine—Liquid—
Mathieson Alkali Works, Inc.

Chrome Nickel Steel Castings (See Castings)—

Circulating Heads—
Wilson Oil Tools Corp.

Clamps—Anchor—
Bartlesville Supply Co.

Clamps—Belt—
Federal Supply Co.

Clamps—Collar Leak—
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

Clamps—Hoisting—
Newton Process Mfg. Co.

Clamps—Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

Clamps—River—
Dresser, S. R. Mfg. Co.
Gaso Pump & Burner Mfg. Co.

Cloths—Wiping—
Nye Tool & Machine Works.

Clutches—Friction, Plate Type—
Twin Disc Clutch Co.

Cocks—Brass and Iron—
Lunkenheimer Co.
Walworth Mfg. Co.

Cocks—Plug—
Homestead Valve Mfg. Co.

Cocks—Water Gauge—
Smith Separator Co.

Coils and Bends—Pipe—
Harrisburg Pipe & Pipe Bending Co.
Midwest Piping & Supply Co.

Collar Leak Clamps—(See Clamps)

Compounds—Boiler—
Dearborn Chemical Co.

Compounds—Joint Sealing—
Key Boiler Equipment Co.

Compressor Cylinders (See Cylinders—Compressor)—

Compressors—Air—
Bessemer Gas Engine Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Gardner Governor Co.
Sullivan Machinery Co.
Worthington Pump & Machinery Corp.

Compressors—Ammonia—
Carbondale Machine Co.
Cooper, C. & G. Co.

Compressors — Direct Connected Motor and Gas Engine Driven
Buffalo Gasolene Motor Co.
Clark Brothers Co.
Cooper C. & G. Co.
Miller Improved Gas Engine Co.

Compressors—Direct Driven Air and Gas—
Bessemer Gas Engine Co.
Miller Improved Gas Engine Co.

Compressors—Gas—
Bessemer Gas Engine Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
National Transit Pump & Machine Co.

Compressors—Portable—
Ingersoll-Rand Co.

Condenser Boxes—
Kaw Boiler Works Co.
Petroleum Iron Works Co.

Condensers—
Ross Heater & Mfg. Co.
Southwestern Engineering Co. Inc.
Southwestern Engineering Corp.

Consulting and Contracting Engineers (See Engineers)—

Controllers—Liquid Level—
Fisher Governor Co., Inc.
Newton Process Mfg. Co.
Smith Separator Co.

—Controllers—Pressure—
Smith Separator Co.

Controllers—Temperature—
Brown Instrument Co.
Foxboro Co., Inc.
Taylor Instrument Co.

Conveyors—Portable Belt—
Barber-Greene Co.

Cooling Towers—Atmospheric—
Braun, C. F. & Co.

Cordage—
Bridgeport Machine Co.
Continental Supply Co.
International Supply Co.

Core Drilling—
Longyear, E. J. Co.
Mineral Exploration Co.
Spengler Core Drilling Co.

Core Drills—Diamond—
Longyear, E. J. Co.
Sullivan Machinery Co.

Coring Tools—
Reed Roller Bit Co.
Spengler Core Drilling Co.
Wilson Oil Tools Corp.

Corrugated Sheets, Black and Galvanized (See Sheets)—

Couplings—Flexible—
Nuttall, R. D. & Co.

Couplings—Plain End Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

Couplings—Seamless Steel—
Harrisburg Pipe & Pipe Bending Co.
Superior Tube Co.

Couplings—Steel for Casing, Line Pipe, Drill Pipe and Tubing—
Dayton Pipe Coupling Co.

Cracking Processes—
Graver Corp.
Kellogg, M. W. Co.
Universal Oil Products Co.

Crawler Treads—
Full Crawler Co.

Crown Blocks—
International Derrick & Equipment Co.
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
Moore, Lee C. & Co., Inc.
Parkersburg Rig & Reel Co.
Slater Brothers Turnbuckle Derrick Co.

Cups—Composition—
Williamsport Development Co.

Cups—Leather—
Auer, C. A.

Cutters—Pipe—
Borden Co.
Nye Tool & Machine Works
Trimont Mfg. Co.

Cylinders—Compressor—
Hope Engineering & Supply Co.

Cylinder Stocks—
Barnsdall Refining Co.
Pure Oil Co.
The Texas Co.

D

Dehydrating Process—
Barnickel, Wm. S. & Co.

Dephlegmators—
Newton Process Mfg. Co.

Depletion Reports—
American Appraisal Co.

Derricks—Steel
Emsco Derrick & Equip. Co.
International Derrick & Equipment Co.
Marion Mch., Fdy. & Supply Co.
Moore, Lee C. & Co., Inc.
O'Brien Steel Construction Co.
Parkersburg Rig & Reel Co.
Slater Bros. Turnbuckle Derrick Co.
Superior Tube Co.

Derricks—Turnbuckle—
National Turnbuckle Derrick Co.
Slater Bros. Turnbuckle Derrick Co.

Diamond Core Drills (See Core Drills—Diamond—

Diamonds for Core Drilling (See Carbon—Black Diamond)—

Die Heads—Automatic Screw Cutting—
Landis Machine Co.

Die Heads—Bolt Threading—
Bignall & Keeler Machine Works.
Landis Machine Co.

Die Heads — Stationary Pipe Threading—
Bignall & Keeler Machine Works.
Cox & Sons Co., The
Landis Machine Co.
Standard Engineering Co.

Diesel Engines (See Engines)—

Dies—Pipe Threading—
Bignall & Keeler Machine Works.
Borden Co.
Cox & Sons Co., The
Landis Machine Co.
Nye Tool & Machine Works.
Standard Engineering Co.

Differential Pressure Recorders (See Recorders)—

Direct Driven Pumps (See Pumps).

Disc Bits (See Bits—Disc)—

Dissolved Acetylene (See Acetylene)—

Distillate—
Acme Petroleum Co.

Ditchers—Pipe Line—
Barber-Greene Co.
Buckeye Traction Ditcher Co.

Draw Works—
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
National Supply Co.
Titusville Iron Works Co.

Drillers Hose (See Hose)—

Drilling and Fishing Tools—
Acme Fishing Tool Co.
Baash-Ross Tool Co.
Bovaird & Seyfang Mfg. Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Brown Welding & Machine Co.
Burns Tool Co.
Continental Supply Co.
Hinderliter Tool Co.
Hughes Tool Co.
International Supply Co.
Larkin & Co.
Leidecker Tool Co.
Lucey Mfg. Corp.
Murray Tool & Supply Co.
Oil Well Supply Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Spang & Co.
Star Drilling Machine Co.
U. S. Tool Co.

Drilling Engines (See Engines)—

Drilling Equipment—
Clark Brothers Co.
Hughes Tool Co.
O'Brien Steel Construction Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Star Drilling Machine Co.

Drilling Gate Valves (See Valves)

Drilling Machines—
Leidecker Tool Co.
Oil Well Supply Co.
Star Drilling Machine Co.

Drilling Tools (See Drilling and Fishing Tools)—

Drilling Valves (See Valves)—

Drills—Portable Air—
Chicago Pneumatic Tool Co.

Drills—Portable Electric—
Chicago Pneumatic Tool Co.

Drive Shoes—
Bartlesville Supply Co.
Larkin & Co.

Drop-Forged Wrenches (See Wrenches)—

Drops and Seats—
Norris Brothers, Inc.

Drums (See Barrels)—

Dynamos—
Westinghouse Electric & Mfg. Co.

E

Electric Equipment—
Fairbanks-Morse & Co.
Pyle National Co.
Wico Electric Co.

Electric Apparatus (See Apparatus—Electric)—

Electric Drilling Equipment—
Lucey Mfg. Corp.
Westinghouse Electric & Mfg. Co.

Electric Pumping and Pulling Motors (See Pumping and Pulling Motors—Electric)—

Electric Steel Castings — See Castings—Electric Steel)—

Elevators—Casing and Tubing—
Bovaird Supply Co.
Bridgeport Machine Co.
Dunn Mfg. Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Wilson Oil Tools Corp.

Elevators—Rod—
D & B Pump & Supply Co.
Dunn Mfg. Co.

Enamels—
Shermin-Williams Co.

Engineers—Consulting and Contracting—
Hope Engineering & Supply Co.
Kellogg, M. W. Co.
Power Specialty Co.
Westcott & Greis.

Engineers—Fire Protection—
Foamite-Childs Corp.

Engineers—Oil Buildings—
Austin Co.
International Derrick & Equipment Co.
Engines—Oil Treating—
Barnickel, Wm. S. & Co.
Engines—Crude Oil—
Western Machinery Co.
Engines—Diesel—
Bessemer Gas Engine Co.
Busch-Sulzer Bros. Diesel Engine Co.
Foos Gas Engine Co.
McIntosh & Seymour Corp.
Western Machinery Co.
Worthington Pump & Machinery Corp.
Engines—Drilling—
Ajax Iron Works.
Beaver Manufacturing Co.
Bessemer Gas Engine Co.
Bovaird & Seyfang Mfg. Co.
Buda Co.
Buffalo Gasolene Motor Co.
Clark Brothers Co.
Continental Supply Co.
Franklin Valveless Engine Co.
Hercules Motor Corp.
Lufkin Foundry & Machine Co.
Pattin Bros. Co.
Power Mfg. Co.
Republic Supply Co.
Titusville Iron Works Co.
Engines—Gas—
Bessemer Gas Engine Co.
Bruce-MacBeth Engine Co.
Buda Co.
Buffalo Gasolene Motor Co.
Chicago Pneumatic Tool Co.
Clark Bros. Co.
Cooper, C. & G., Co.
Foos Gas Engine Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
International Supply Co.
Jones, S. M. Co.
Marion Mch., Fdy. & Supply Co.
Miller Improved Gas Engine Co.
National Supply Co.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Titusville Iron Works Co.
Waukesha Motor Co.
Western Machinery Co.
Engines—Gasoline—
Buda Co.
Buffalo Gasolene Motor Co.
Climax Engineering Corp.
Continental Motors Corp.
Fairbanks-Morse & Co.
International Harvester Co. of America.
Novo Engine Co.
Waukesha Engine Co.
Western Machinery Co.
Engines—Oil—
Bessemer Gas Engine Co.
De La Vergne Machine Co.
Fairbanks-Morse & Co.
Franklin Valveless Engine Co.
International Harvester Co. of America.
McIntosh & Seymour Corp.
National Supply Co.
Oil Well Supply Co.
Power Mfg. Co.
Reid, Joseph, Gas Engine Co.
Western Machinery Co.
Engines—Rotary—Steam—
Baker Motors, Inc.
Engines—Semi-Diesel, Oil—
Chicago Penumatic Tool Co.
Engines—Steam—
Ajax Iron Works.
Baker Motors, Inc.
Frick-Reid Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Evaporators—
Newton Process Mfg. Co.
Expansion Pistons (See Pistons)—
Extinguishers—Fire—
Amdyco Corp.
Foamite-Childs Corp.

F

Fabricators for Gasoline Plants and Refineries—
Stearns-Roger Mfg. Co.
Fence—Chain Link—
Page Fence & Wire Products Association.
Filters—
Metric Metal Works.
Filters—Oil—
Burt Mfg. Co.
Fire Extinguishers (See Extinguishers)—
Fishing Tools (See Drilling and Fishing Tools)—
Fish Tail Bits (See Bits)—
Fittings—Dropped Forged Steel—
Vogt, Henry, Machine Co.
Fittings—Malleable & Cast Iron—
Bovaird Supply Co.
Crane Co.
Frick-Reid Supply Co.
Kelly & Jones Co.
Walworth Mfg. Co.
Fittings—Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.
Gaso Pump & Burner Mfg. Co.
Jarecki Mfg Co.
Kellogg, M. W., Co.
Kennedy Valve Mfg. Co.
Lufkin Foundry & Machine Co.
Metric Metal Works.
Oil Well Supply Co.
Reading Steel Casting Co.
Republic Supply Co.
United Iron Works, Inc.
Fittings—Steel—
Dayton Pipe Coupling Co.
Kelly & Jones Co.
Ohio Steel Foundry Co.
Pittsburgh Reinforced Brazing & Machine Co.
Flanges—Brass, Iron and Steel—
Kelly & Jones Co.
Metric Metal Works.
Flange Unions—
Gaso Pump & Burner Mfg. Co.
Flashlights—
National Carbon Co.
Floating Roofs and Decks—
Chicago Bridge & Iron Works.
Floodlights—
Pyle-National Co.
Floor Circle Braces (See Braces)
Force Feed Lubricators (See Lubricators)—
Forging Billets—
Andrews Steel Co.
Harrisburg Pipe & Pipe Bending Co.
Heppenstall Forge & Knife Co.
Forgings—
Champion Machine & Forging Co.
Milwaukee Forge & Machine Co.
Friction Cluth Pulleys (See Pulleys)—
Fuel Oil (See Oil—Fuel—

G

Gas and Oil Gate Valves (See Valves)—
Gas Compressors (See Compressors—Gas)—
Gas Engines (See Engines—Gas)
Gas Holders—
Chicago Bridge & Iron Works.
Gaskets—
Garlock Packing Co.
McCord Radiator & Mfg. Co.
Gaskets—Fibre—
Durabla Mfg. Co.
Gas Masks & Safety Appliances—
Mine Safety Appliance Co.
Gas Meters (See Meters)—
Gas Oil (See Oil—Gas)—
Gasoline—
Berry's, James B. Sons Co.
Crown Central Petroleum Co.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
Skelly Oil Co.
Gasoline—Natural—
Chestnut & Smith Corp.
Gasolene Plant Equipment—
Bessemer Gas Engine Co.
Clark Brothers Co.
Kellogg, M. W., Co.
Newton Process Mfg. Co.
Gas Regulator Casinghead—
Davis Regular Co.
Gas Regulators—
Chaplin Fulton Mfg. Co.
Davis Regulator Co.
Fisher Governor Co.
Metric Metal Works.
Smith Separator Co.
Gas Scrubbers—
Newton Process Mfg. Co.
Gauge Glass—High Pressure—
Durabla Mfg. Co.
Gauge Poles—
Marsh Gauge Pole Co.
Gauges—Pressure and Vacuum—
Bristol Co.
Metric Metal Works.
Gauges—Test—
Metric Metal Works.
Gear Driven Pumps (See Pumps)
Gears—Cut—
Nuttall, R. D., & Co.
Gears—Reduction—
Nuttall, R. D., & Co.
Generators—
Westinghouse Electric & Mfg. Co.
Generators—Acetylene—
Oxweld Acetylene Co.
Generators—Steam—
Baker Motors, Inc.
Generators—Turbine—
Moon Manufacturing Co.
Pyle-National Co.
Westinghouse Electric & Mfg. Co.
Glass Bottles (See Bottles, Glass)
Glassware—Chemical for Laboratory Use—
Illinois Glass Co.
Governors —
Gardner Governor Co.
Governors—Boiler Feed—
Chaplin-Fulton Mfg. Co.
Fisher Governor Co.
Grey Iron Castings (See Castings)

H

Hammers—Chipping and Calking Pneumatic—
Chicago Pneumatic Tool Co.
Hammers—Riveting Pneumatic—
Chicago Pneumatic Tool Co.
Hangers—Iron and Steel—
Dodge Mfg. Corp.
Hatches—Gauge and Thief—
Oil Conservation Engineering Co.
Heat Exchangers—
Carbondale Machine Co.
Griscom-Russell Co.
Hope Engineering & Supply Co.
Newton Process Mfg. Co.
Ross Heater & Mfg. Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.
Heat Interchanges—Fluid—
Braun, C. F. & Co.
High Pressure Gate Valves (See Valves)—
Hoists—Pneumatic, Geared and Universal—
Chicago Pneumatic Tool Co.
Yale & Towne Mfg. Co.
Hoists—Portable—
Wright Mfg. Co.
Yale & Towne Mfg. Co.
Hoists—Well Pulling—
Emsco Derrick & Equip. Co.
Hooks for Rods and Tubing—
Dunn Mfg. Co.
Hose—
Fenwick-Reddaway Mfg. Co.
Hose—Drillers—
Goodrich, B. F. Rubber Co.
United States Rubber Co.
Hose—Oil Suction and Discharge
Goodrich, B. F. Rubber Co.
United States Rubber Co.
Hose—Rubber—
Goodyear Tire & Rubber Co.
United States Rubber Co.
Hot Rolled Strip Steel (See Steel)
Hydraulic Gate Valves (See Valves)—
Hydraulic Jacks (See Jacks)—
Hypochlorite of Lime—
Mathieson Alkali Works, Inc.

I

Insulation Materials—
Celite Products Co.
Johns-Manville, Inc.
Insurance—Fire—
Oil Insurance Association.
Insurance—Tornado—
Oil Insurance Association.
Iron—Ingot—
American Rolling Mill Co.

J

Jacks—Hydraulic—
Bridgeport Machine Co.
Jacks—Lifting—
Templeton, Kenly & Co., Ltd.
Jacks—Pumping—
American Well Works.
Bessemer Gas Engine Co.
Braden Co.
Frick-Reid Supply Co.
Jones S. M., Co.
Kansas City Hay Press Co.
Spang & Co.
Jars—
Bridgeport Machine Co.
Spang & Co.
Jar Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

K

Kerosene—
Acme Petroleum Co.
Empire Refiners, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Skelly Oil Co.

L

Lacquers—
Sherwin-Williams Co.
Lanterns—Electric—
Delta Electric Co.
Lead and Mixed Metal Products—
Eagle-Picher Lead Co.
Lead in Oil—
Eagle-Picher Lead Co.
National Lead Co.
Lead Wool and Containers—
Eagle-Picher Lead Co.
Lifting Jacks (See Jacks)—
Lightning Equipment—
Climax Engineering Co.
Pyle National Co.
Westinghouse Electric & Mfg. Co.
Liquid Level Controls (See Controllers)—
Lithrage—
Eagle-Picher Lead Co.
National Lead Co.
Loaders—Trucks—
Barber-Greene Co.
Long Distance Telephone—
American Telephone & Telegraph Co.
Lubricating Devices—
McCord Radiator & Mfg. Co.
Lubricating Oils (See Oils)—
Lubricators—
Ajax Iron Works.
Lukenheimer Co.
Lubricators—Force Feed—
Manzel Brothers Co.
McCord Radiator & Mfg. Co.

M

Machine Tools—
Ryerson, Jos. T., & Sons, Inc.
Manifolds—
Reid, Joseph, Gas Engine Co.
Metal Buildings Sectional (All Types (See Buildings)—
Meters—Gas—
Foxboro Co., Inc.
Metric Metal Works.
Pittsburgh Meter Co.
Roots, P. H. & F. M. Co.
Westcott and Greis.
Meters—Gasoline—
Pittsburgh Meter Co.
Meters—Oil—
Pittsburgh Meter Co.
Molded Goods—Rubber—
Goodyear Tire & Rubber Co.
Motor Controlled Apparatus (See Apparatus—Motor Control)—
Motors—Electric—
Fairbanks-Morse & Co.
Westinghouse Electric & Mfg. Co.
Motors—Gasoline (See Engines—Gasoline)—
Motor Trucks (See Trucks—Motor)—

N

Naptha—
Pure Oil Co.
Natural Gasoline(See Gasoline—Natural—
Natural Gasoline Plant Equipment
American Tank Co.
Campbell, J. A.
Continental Supply Co.
Cooper, C. & G., Co.
Griscom-Russell Co.
Roots, P. H. & F. M., Co.
Smith Separator Co.
Westcott & Greis.
Nitrogen—
Linde Air Products Co.

O

Oil and Gas Pipe Line Construction—
Hope Engineering & Supply Co.
Oil Burner (See Burners—Oil)—
Oil Engines, Semi-Diesel (See Engines—Semi-Diesel Oil)—
Oil Field Equipment—
Baker Casing Shoe Co.
Bridgeport Machine Co.
Continental Supply Co.
Cunningham Co.
Gaso Pump & Burner Mfg. Co.
International Derrick & Equipment Co.
Iron King Mfg. Co.
Kaw Boiler Works Co.
National Supply Co.
Oil Well Supply Co.
Parkersburg Machine Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Republic Supply Co.
Simplex Equipment Co.
Trumble Gas Trap Co.
Oil Filters—(See Filters—Oil)—
Oil—Fuel—
Acme Petroleum Co.
Crown Central Petroleum Corp.
Empire Refiners, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
The Texas Co.
Oil—Gas—
Acme Petroleum Co.
Crown Central Petroleum Corp.
Gulf Refining Co.
Pure Oil Co.
Sinclair Refining Co.
The Texas Co.
Oil—Lubricating—
Barnsdall Refining Co.
Berry's, James B. Sons Co.
Crown Central Petroleum Corp.
Empire Refiners, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pennzoil Co.
Pure Oil Co.
Sinclair Refining Co.
Skelly Oil Co.
The Texas Co.
Oil—Tractor—
Barnsdall Refining Co.
Gulf Refining Co.
Pennzoil Co.
Pure Oil Co.
Skelly Oil Co.
Oiling Devices—
Lunkenheimer Co.
Oil Meters(See Meters)—
Oil Piping Equipment (See Fittings)—
Oil Reclaiming Process—
Barnickel, Wm. S., & Co.
Houston Pump & Supply Co.
Oil Refinery Equipment (See Refinery Equipment)—
Oil Securities (See Securities)—
Oil Suction and Discharge Hose—(See Hose)—
Oil Well Cementing—
Halliburton, Erle P.
Oil Well Screens (See Screens)—
Oil Well Tools—
D & B Pump & Supply Co.
Hinderliter Tool Co.
Reed Roller Bit Co.
Titusville Forge Co.
U. S. Tool Co.
Over Shots—
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Oxygen—
Linde Air Products Co.

P

Packer Release—
Acme Fishing Tool Co.
Packers—
Goodyear Tire & Rubber Co.
Guiberson Corp.
Larkin & Co.
Layne & Bowler Co.
Oil Well Supply Co.
Regan Forge & Engineering Co.
Spang & Co.
United States Rubber Co.
Packing—
Crane Packing Co.
Durabla Mfg. Co.
Garlock Packing Co.
Goodrich, B. F., Rubber Co.
Imperial Belting Co.
Johns-Manville, Inc.
Packing—Metallic—
Crane Packing Co.
Paint Guns—
Binks Spray Equipment Co.
Painting Equipment—Mechanical
Matthews, W. N., Corp.
Paints—
Aluminum Co. of America.
American Asphalt Paint Co.
Continental Supply Co.
Cook Paint & Varnish Co.
Dixon, Joseph Crucible Co.
Eagle-Picher Lead Co.
Eclipse Paint & Mfg. Co.
Sherwin-Williams Co.
Pipe—Cast Iron—
American Cast Iron Pipe Co.
Continental Supply Co.
Greenspon's Jos., Sons Iron & Steel Co.
International Supply Co.
U. S. Cast Iron Pipe & Fdy. Co.
Pipe—Lead Chemical and Antimonial—
Eagle-Picher Lead Co.
Pipe—Steel—
Greenspon's Jos., Sons Iron & Steel Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
Murray Tool & Supply Co.
National Supply Co.
National Tube Co.
Republic Iron & Steel Co.
Ryerson, Jos. T., & Son, Inc.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.
Pipe—Wrought Iron—
Byers, A. M., Co.
Frick-Reid Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Oil Well Supply Co.
Reading Iron Co.
Superior Tube Co.
Pipe and Nipple Threading Machines—
Bignall & Keeler Machine Works.
Cox & Sons Co., The
Landis Machine Co.
Ryerson, Jos. T., & Sons, Inc.
Standard Engineering Co.
Pipe Clamps (See Clamps—Pipe)
Pipe Fitting (See Fittings)—
Pipe Grips—
Larkin & Co.
Pipe Headers—
National Tube Co.
Newton Process Mfg. Co.
Pipe Line Construction Tools—
National Transit Pump & Machine Co.
Pipe Line Ditchers (See Ditchrs)
Pipe Line Equipment)
Gaso Pump & Burner Mfg. Co.
Pipe Screwing Machines—
Buckeye Traction Ditcher Co.
Pipe Suspension Device—
Stearns-Roger Mfg. Co.
Pipe Threading Dies (See Dies)—
Pipe Tools—
Armstrong Brothers Tool Co.
Nye Tool & Machine Works.
Piping—Fabricated—
Kelly & Jones Co.
Midwest Piping & Supply Co.
Piping—Hard Rubber—
United States Rubber Co.
Piping—Steel & Iron—
Crane Co.
Greenspon's Jos., Sons Iron & Steel Co.
Power Piping Co.
Pistons—
Guiberson Corp.
Heppenstall Forge & Knife Co.
Pistons—Expansion—
Wilson Oil Tool Corp.
Pistons—Slush Pump—
Guiberson Corp.
Plain End Pipe Couplings (See Couplings—Plain End Pipe)—
Plugs—Bottom Water—
Guiberson Corp.
Polish Rods (See Rods—Polish)—
Portable Drilling Rigs (See Rigs)
Power Pumps (See Pumps)—
Power Units —Portable (See Engines)—
Pre-Heaters—
Newton Process Mfg. Co.
Ross Heater & Mfg. Co.
Preservatives—Asphalt —
American Asphalt Paint Co.
Pulleys—Wood, Iron and Steel—
Dodge Mfg. Co.
Pulling Machines—
Iron King Mfg. Co.
National Supply Co.
Safety Pulling Machine Co.
Pumpers—Long Stroke—
Farley Machine Co.
Pumping and Pulling Motors—Electric—
Westinghouse Electric & Mfg. Co.
Pumping Equipment—
American Well Works.
Axelson Machine Co.
Bryson Jackson Pump Mfg. Co., Inc.
D & B Pump & Supply Co.
Farley Machine Co.
Goulds Mfg. Co.
Jones, S. M., Co.
Myers, F. E., Bro. & Co.
Northup Equipment Co.
Oil Well Supply Co.
Prescott Co.
Ratigan, J. P. Co.
Waukesha Motor Co.
Pumping Gear Units—
Nuttall, R. D., & Co.
Pumping Jacks (See Jacks)—
Pumping Powers—
Aldrich Pump Co.
Bessemer Gas Engine Co.
Buda Co.
Climax Engineering Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
Kansas City Hay Press Co.
Marion Mch., Fdy. & Supply Co.
National Supply Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Spence Machine Co.
Titusville Iron Works Co.
Pumps—Air Lift—
Ingersoll-Rand Co.
Pumps—Boiler Food—
Ajax Iron Works.
Byron Jackson Pump Mfg. Co. Inc.
Fairbanks-Morse & Co.
Gardner Governor Co.
Oil Well Supply Co.
Worthington Pump & Machinery Corp.
Pumps—Centrifugal—
American Well Works.
Byron Jackson Pump Mfg. Co. Inc.
Dean Hill Pump Co.
Fairbanks-Morse & Co.
Worthington Pump & Machinery Corp.
Pumps—Direct Driven—
Aldrich Pump Co.
Bessemer Gas Engine Co.
Pumps—Electric—
Prescott Co.
Pump—Fuel Oil Service—
Aldrich Pump Co.
Blackmer Pump Co.
Northern Fire Apparatus Co.
Pumps—Fuel Oil Transfer—
Aldrich Pump Co.
Byron Jackson Pump Mfg. Co. Inc.
Pumps—Gasoline and Oil for Filling Stations—
Gilbert & Barker Mfg. Co.
Pumps—Gear Driven—
Aldrich Pump Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
Prescott Co.
Pumps—Hot Oil—
Byron Jackson Pump Mfg. Co. Inc.
Pumps—Pipe Line—
Aldrich Pump Co.
Byron Jackson Pump Mfg. Co. Inc.

Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
National Transit Pump & Machine Co.
Prescott Co.
Worthington Pump & Machinery Corp.

Pumps—Power—
Aldrich Pump Co.
Dean Brothers Co.
Fairbanks-Morse & Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Myers, F. E. Bro. & Co.
National Transit Pump & Machine Co.
Novo Engine Co.
Prescott Co.
Waukesha Motor Co.
Worthington Pump & Machinery Corp.

Pumps—Refinery—
Aldrich Pump Co.
Byron Jackson Pump Mfg. Co., Inc.
Dean Hill Pump Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Kinney Mfg. Co.
National Transit Pump & Machine Co.
Northern Fire Apparatus Co.
Worthington Pump & Machinery Corp.

Pumps—Rotary—
Blackmer Pump Co.
Northern Fire Apparatus Co.
Roots, P. H. & F. M. Co.

Pumps—Sand—
Bridgeport Machine Co.
Larkin & Co.

Pumps—Slush—
Gardner Governor Co.

Pumps—Steam—
Dean Brothers Co.
Fairbanks-Morse Co.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Prescott Co.
Vogt Brothers Mfg. Co.

Pumps—Suction—
Gaso Pump & Burner Mfg. Co.

Pumps—Vacuum—
Bessemer Gas Engine Co.
Clark Brothers Co.
Gaso Pump & Burner Mfg. Co.
Miller Improved Gas Engine Co.
Roots, P. H. & F. M., Co.
Worthington Pump & Machinery Corp.

Pumps—Water—
Aldrich Pump Co.
American Well Works.
Byron Jackson Pump Mfg. Co., Inc.
Gaso Pump & Burner Mfg. Co.
Northern Fire Apparatus Co.
Prescott Co.

Purifiers—Oil Absorption—
Sharpless Specialty Co.

Pyrometers—
Brown Instrument Co.

R

Ratchet Pipe Cutters—
Toledo Pipe Threading Machine Co.

Ratchet Pipe Threaders—
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Ratchet Reamers—
Nye Tool & Machine Works.

Ratchet Stocks and Dies—
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Ratchet Wrenches (See Wrenches)

Receiving Boxes—
Reid, Joseph, Gas Engine Co.

Recorders—Differential Pressure—
Metric Metal Works.

Refinery Equipment—
American Radiator Co.
Braun, C. F. & Co.
Carbondale Machine Co.
Chicago Bridge & Iron Works.
Graver Corp.
Griscom-Russell Co.
Kellogg, M. W., Co.
Newton Process Mfg. Co.
Petroleum Appliance Co.
Petroleum Iron Works Co.
Power Piping Co.
Power Specialty Co.
Reid, Joseph, Gas Engine Co.
Ross Heater & Mfg. Co., Inc.
Ross-Meehan Foundries.
Smith Separator Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.
United Iron Works, Inc.
Universal Oil Products Co.
Vogt, Henry, Machine Co.
Walsh & Weidner Boiler Co.
Westcott & Greis.

Refinery Pumps (See Pumps)—

Refractories—Furnace, Stills and Baffles—
Botfield Refractories Co.

Refrigerating Machinery—
Carbondale Machine Co.
Climax Engineering Co.
United Iron Works, Inc.
Vogt, Henry, Machine Co.

Regulators—
Fisher Governor Co., Inc.
Smith Separator Co.

Rental Service—
Bridgeport Machine Co.

Reversible Clutches—
Bessemer Gas Engine Co.

Rig Irons—
International Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.

Rigs—Drilling, All Steel—
Emsco Derrick & Equip. Co.
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.

Rigs—Portable Drilling—
National Supply Co.
National Turnbuckle Derrick Co.
Star Drilling Machine Co.

River Clamps—(See Clamps)—

Rods—Polish—
Jones, S. M., Co.

Rods—Pull—
Axelson Machine Co.
Columbus Sucker Rod Co.
Jones, S. M., Co.
Sheffield Steel Corp.

Rods—Sucker—
Axelson Machine Co.
Columbus Sucker Rod Co.
Frick-Reid Supply Co.
Jones, S. M. Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Sheffied Steel Corp.

Rods—Valve—
Jones, S. M., Co.

Roofing—Asbestos—
Johns-Manville, Inc.

Rope Socket Metal—
Eagle-Picher Lead Co.

Rope—Manila—
Ajax Rope Co., Inc.
Bovaird Supply Co.
Republic Supply Co.

Rope—Wire—
Ajax Rope Co., Inc.
American Cable Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Broderick & Bascom Rope Co.
International Supply Co.
Jarecki Mfg. Co.
Leschen, A. & Sons, Rope Co.
Wickwire-Spencer Steel Corp.

Rotary Bit Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Rotary Disc Bits (See Bits)—

Rotary Drilling Equipment—
Climax Engineering Co.
Continental Supply Co.
Frick-Reid Supply Co.
International Derrick & Equipment Co.
Link-Belt Co.
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Titusville Iron Works Co.

Rotary Drive Bushings (See Bushings—Rotary Drive)—

Rotary Lines (See Rope—Wire)—

Rotary Post—
Reed Roller Bit Co.

Rotary Rock Bits (See Bits)—

Rotary Tool Joints—
Bartlesville Supply Co.
Hughes Tool Co.

Rotary Ventilators (See Ventilators)—

Rubber Belting (See Belting)—

Rubber Hose (See Hose)—

Run Down Tanks—(See Tanks)—

Rust Preventatives—
Dearborn Chemical Co.
Eagle-Picher Lead Co.

S

Sand Lines—Manila—
Ajax Rope Co., Inc.

Sand Lines—Wire—
Ajax Rope Co., Inc.
Broderick & Bascom Rope Co.
Wickwire-Spencer Steel Corp.

Sand Pumps (See Pumps, Sand)

Screens—Oil Well—
Layne & Bowler Co.

Screens—Water Well—
Layne & Bowler Co.

Screws Temper—
Burns Tool Co.

Seamless Steel Couplings — (See Couplings Seamless Steel)—

Separators—Centrifugal—
Miller, Max B., & Co.
Sharpless Specialy Co.

Separators—Gas and Oil—
Ameircan Tank Co.
Smith Separator Co.

Sheet Lead—Chemical and Antimonial—
Eagle-Picher Lead Co.

Sheets—Corrugated, Black and Galvanized—
American Sheet & Tin Place Co.
Ryerson, Jos. T., & Son., Inc.
United Alloy Steel Corp.

Sheets—Steel—
American Sheet & Tin Plate Co.
Republic Iron & Steel Co.
Sheffied Steel Corp.
United Alloy Steel Corp.

Shingles—Asbestos—
Johns-Manville, Inc.

Sleeves—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Sleeves—Split—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Slush Pump Pistons (See Pistons)—

Slush Pumps—(See Pumps)—

Smoke Stacks—
Donovan Boiler Works

Snuffers—Fire—
Simplex Equipment Co.

Sockets—
Acme Fishing Tool Co.
Bridgeport Machine Co.
Spang & Co.

Sockets—Wire Rope—
Chicago Steel Foundry Co.

Soda Ash—
Mathieson Alkali Works, Inc.

Soda—Caustic—
Mathieson Alkali Works, Inc.

Solders—Bar and Wire—
Eagle-Picher Lead Co.

Spark Plugs—
Mosler Metal Products Corp.

Spears—
Acme Fishing Tool Co.
Brown Welding & Machine Co.

Special Steel (See Steel Special)—

Split Sleeves (See Sleeves)—

Sprockets—Power Transmission—
Ajax Iron Works.
Chain Belt Co.

Stands—Vise—
Nye Tool & Machine Works.

Stationary Pipe Threading Die Heads (See Die Heads)—

Steam Pumps—(See Pumps)—

Steel—All Kinds—
Ryerson, Jos. T., & Son, Inc.

Steel—Alloy—
Central Steel Co.
Timken Roller Bearing Co.
United Alloy Steel Corp.

Steel—Bit—
Central Steel Co.

Steel—Hot Rolled Strip—
Central Steel Co.

Steel—Special—
Central Steel Co.
United Alloy Steel Corp.

Steel Band Wheels (See Band Wheels—Steel)—

Steel Bridges—(See Bridges)—

Steel Bull Wheels—(See Bull Wheels—Steel)—

Steel Castings (See Castings)—

Steel Couplings for Casing, Line Pipe, Drill Pipe and Tubing (See Couplings)—

Steel Crown Blocks—(See Crown Blocks)—

Steel Derricks—(See Derricks)—

Steel Fabricators—Structural—
Austin Co.
Braden Co.
Graver Corp.
International Derrick & Equipment Co.

Steel Fittings (See Fittings)—

Steel Pitmans—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.
Slater Brothers Turnbuckle Derrick Co.

Steel Plate Construction—
Chicago Bridge & Iron Works
Graver Corp.
Kaw Boiler Works Co.
Petroleum Iron Works Co.
Tulsa Boiler & Machinery Co.
Vogt, Henry, Machine Co.

Steel Sheets (See Sheets, Steel)—

Steel Valves (See Valves—Steel)—

Steel Walking Beams (See Walking Beams—Steel)—

Steel Wheels and Tug Rims—
Emsco Derrick & Equip. Co.
International Derrick & Equipment Co.

Stills—
Chicago Bridge & Iron Works
Graver Corp.
Kaw Boiler Works Co.
Kellogg, M. W., Co.
Newton Process Mfg. Co.
Petroleum Iron Works Co.
Vogt, Henry, Machine Co.

Stocks & Dies—
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Structural Steel Fabricators (See Steel Rabricators)—

Stuffing Boxes—
Axelson Machine Co.
Kansas City Hay Press Co.

Sucker Rods (See Rods—Sucker)

Suction Pumps—(See Pumps)—

Sulphuric Acid—
Eagle-Picher Lead Co.

Swabs—
Guiberson Corp.
Hoffman Mfg. Co.
Saunders Bros.
Simplex Equipment Co.

Swedge Nipples—
Dresser, S. R., Mfg. Co.
Harrisburg Pipe & Pipe Bending Co.

Swivels—
Layne & Bowler Co.
Lucey Mfg. Corp.
Titusville Iron Works Co.

T

Tank Cars (See Cars—Tanks)—

Tank Cars Leased (See Cars)—

Tank Equipment—
Oil Conservation Engineering Co.

Tanks—Bolted—
American Tank Co.
Butler Mfg. Co.
Gantz Tank Co.
Maloney Tank Mfg. Co.
Parkersburg Rig & Reel Co.

Tanks—Bulk Station—
Graver Corp.

Tanks—Cylindrical—
Petroleum Iron Works Co.

Tanks—Elevated Steel—
Chicago Bridge & Iron Works

Tanks—Field Storage—
American Car & Foundry Co.
American Tank Co.
Donovan Boiler Works.
Graver Corp.
Kaw Boiler Works.
Kewanee Boiler Co.
Maloney Tank Mfg. Co.
Petroleum Iron Works Co.
Pittsburg-Des Moines Steel Co.
Riter-Conley Co.
Tulsa Boiler & Machinery Co.
United Iron Works, Inc.

Tanks—Horizontal Storage—
Graver Corp.
Kaw Boiler Works Co.
Maloney Tank Mfg. Co.

Tanks—Run Down—
Donovan Boiler Works
Graver Corp.
Kaw Boiler Works Co.
Newton Process Mfg. Co.

Tanks—Truck—
American Tank Co.
Butler Mfg. Co.
White Co.

Tanks—Underground—
Butler Mfg. Co.
Gilbert & Barker Mfg. Co.
Graver Corp.
Kewanee Boiler Co.
Pittsburgh-Des Moines Steel Co.
Tulsa Boiler & Machinery Co.

Tanks—Welded—
American Tank Co.
Chicago Bridge & Iron Works
Gants Tank Co.

Taper Taps—
Hughes Tool Co.

Tapes—Measuring for Oil Gauging—
Lufkin Rule Co.

Temperature Controllers (See Controllers—Temperature)—

Temper Screws (See Screws)—

Thermometers—Indicating and Recording—
American Schaeffer & Budenberg Corp.
Bristol Co.
Taylor Instrument Co.

Threading Machines—
Bignall & Keeler Machine Wks.
Cox & Sons Co., The
Landis Machine Co.

Thread Protectors—
Spang & Co.

Tires—Automobile—
Continental Supply Co.

Tongs—
Bridgeport Machine Co.
Wilson Oil Tools Corp.

Tongs—Back Up—
Williams, J. H., & Co.

Tongs—Break Out—
Reed Roller Bit Co.
Williams, J. H., & Co.

Tongs—Casing—
Dunn Mfg. Co.
Guiberson Corp.

Tongs—Chain Pipe—
Williams, J. H., & Co.

Tongs—Pipe—
National Transit Pump & Machine Co.

Tongs—Rotary—
Dunn Mfg. Co.

Tongs—Tool Joint—
Guiberson Corp.
Hughes Tool Co.
Reed Holler Bit Co.

Tongs—Tubing—
Dunn Mfg. Co.

Tool Chests—Pipe—
Nye Tool & Machine Works.

Tool Joints—
Bridgeport Machine Co.
Federal Supply Co.
Hughes Tool Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Regan Forge & Engineering Co.

Tool Joint Tongs (See Tongs)—

Tools—Fishing and Drilling (See Drilling and Fishing Tools)—

Tools—Oil Well Drilling (See Drilling and Fishing Tools)—

Torches—
Oxweld Acetylene Co.

Tractor Oil (See Oil —Tractor)—

Tractors—
International Harvester Co. of America.
Rock Island Plow Co.

Transmission Belt—Rubber—
Goodrich, B. F. Rubber Co.
United States Rubber Co.

Transmission Lining—
Stanley Belting Corp.

Traveling Block—
Lucey Mfg. Corp.
Regan Forge & Engineering Co.
Wright Mfg. Co.

Trenches—Vertical Boom—
Barber-Greene Co.

Trucks—Motor—
Ford Motor Co.
General Motors Truck Co.
International Harvester Co. of America.
White Co.

Truck Tanks (See Tanks)—

Truck Tires (See Tires—Truck)—

Tubes—Boiler, Charcoal Iron—
Byers, A. M., Co.
Reading Iron Co.

Tubes—Boiler Steel—
National Tube Co.
Ryerson, Jos. T., & Son, Inc.

Tubing—
Babcock & Wilcox Tube Co.
Byers, A. M., Co.
Central Tube Co.
National Tube Co.
Reading Iron Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.

Tubing Catchers—
Dunn Mfg. Co.
Guiberson Corp.

Tubing Elevators (See Elevators, Casing and Tubing)—

Tubular Goods—
Oil Well Supply Co.
Republic Iron & Steel Co.
Spang, Chalfant & Co., Inc.

Tubular Goods—Wrought Iron—
Byers, A. M., Co.
Reading Iron Co.

Turbines for Lighting Equipment
Lucey Mfg. Corp.
Westinghouse Electric & Mfg. Co.

Turbine Generators (See Generators—Turbine)—

Turnbuckle Derricks (See Derricks)—

U

Underground Tanks (See Tanks)

Underreamer Bit Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Underreamer Cutter Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Underreamers—
Bridgeport Machine Co.
Brown Welding & Machine Co.
Guiberson Corp.
Wilson Oil Tools Corp.

Unions—
Continental Supply Co.
Kelly & Jones Co.

V

Vacuum Pumps (See Pumps)—

Valuations—
American Appraisal Co.

Valves—Blow-off—
Homestead Valve Mfg. Co.

Valves—Brass and Bronze—
Homestead Valve Mfg. Co.
Kelly & Jones Co.
Lunkenheimer Co.
Reading Steel Casting Co.
Walworth Mfg. Co.

Valves—Cast Steel—
Chapman Valve Mfg. Co.
Homestead Valve Mfg. Co.

Valves—Check—
Gaso Pump & Burner Mfg. Co.
Lunkenheimer Co.

Valves—Drop Forged Steel—
Edward Valve & Mfg. Co.
Vogt, Henry, Machine Co.

Valves—Gate—High and Low Pressure—
Chapman Valve Mfg. Co.
Continental Supply Co.
Crane Co.
Darling Valve & Mfg. Co.
Kelly & Jones Co.
Kennedy Valve Mfg. Co.
Ludlow Valve Mfg. Co.
Lunkenheimer Co.
Murray Tool & Supply Co.
Pittsburgh Reinforced Brazing & Machine Co.
Powell, Wm., Co.

Valves—Iron—
Chapman Valve Mfg. Co.
Lunkenheimer Co.
Reading Steel Casting Co.

Valves—Metal Pump—
Durbla Mfg. Co.

Valves—Pump—
United States Rubber Co.

Valves—Relief—Supersensitive—
Davis Regulator Co.

Valves—Steel—
Chapman Valve Mfg. Co.
Edward Valve & Mfg. Co.
Kelly & Jones Co.
Lunkenheimer Co.
Metric Metal Works.
Pittsburgh Reinforced Brazing & Machine Co.
Powell, Wm., Co.
Reading Steel Casting Co.

Valves—Tank Vent—
Oil Conservation Engineering Co.

Valves—Working Barrel—
Atlas Ball Co.
Axelson Machine Co.
D & B Pump & Supply Co.
Hough, Charles N., Mfg. Co.
Northup Equipment Co.
Oil Well Supply Co.

Varnishes—
Sherwin-Williams Co.

Ventilators—Rotary—
Swartwout Co.

Vises—Bench—
Nye Tool & Machine Works.

Vises—Pipe—
Nye Tool & Machine Works.

Vises—Post—
Nye Tool & Machine Works.

W

Wagons—Truss Wheel—
Athey Truss Wheel Co.

Walking Beams—Steel—
Moore, Lee C., & Co., Inc.

Water Gauge Cocks (See Cocks)—

Water Pumps (See Pumps)—

Water Softeners and Filters—
Graver Corp.

Water Well Screens (See Screens)

Wax—
Barnsdall Refining Co.
Gulf Refining Co.
Pure Oil Co.

Weight Indicators—
Hughes Tool Co.

Welded Tanks (See Tanks)—

Welding Accessories—Electric—
Wilson Welder & Metals Co.

Welding and Cutting Apparatus—
Oxweld Acetylene Co.

Welding Machines—Electric—
Wilson Welder & Metals Co.

Welding Supplies—
Oxweld Acetylene Co.

Welding Wire—
Frick-Reid Supply Co.
Oxweld Acetylene Co.
Page Fence & Wire Products Association.
Wilson Welder & Metals Co.

Well Drilling and Fishing Tools—(See Drilling and Fishing Tools)—

Well Drilling Equipment (See Drilling Equipment)—

Well Shooting—
Eastern Torpedo Co.
Zero Hour Torpedo Co.

Wheels—Pipe Cutter—
Nye Tool & Machine Works.

Wheel—Steel Automotive—
Budd Wheel Co.

Winches—
Braden Co.
Oil Conservation Engineering Co.

Wire Lines (See Cables—Steel)—

Wire Rope (See Rope—Wire)—

Wood Patterns and Models—
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Working Barrels—
Axelson Machine Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hough, Charles N., Mfg. Co.
McGregor Working Barrel Co.
Northrup Equipment Co.
Oil Well Supply Co.

Working Barrel Valves (See Valves—Working Barrel)—

Wrenches—Closet Spuds—
Nye Tool & Machine Works.

Wrenches—Drop Forged—
Williams, J. H., & Co.

Wrenches—Pipe—
Trimont Mfg. Co.
Walworth Mfg. Co.

Wrenches—Ratchet—
Dresser, S. R., Mfg. Co.
Nye Tool & Machine Works.

Z

Zinc Oxide—
Eagle-Picher Lead Co.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for December

Runs

Company—	Month	Dy. Av.
*Prairie Pipe Line Co.	3,968,000	128,000
Gulf Pipe Line Co.	1,119,896	36,126
Texas Pipe Line Co.	565,606	18,245
Magnolia Petroleum Co.	1,046,077	33,744
Empire Pipe Line Co.	689,585	22,245
Cosden Pipe Line Co.	647,546	20,889
*Sinclair Pipe Line Co.	1,705,000	55,000
*Other lines	7,688,000	248,000
Total Dec.	17,429,710	562,249
Total Nov.	17,796,801	593,226
Difference	367,091	30,977

Shipments

Company—	Month	Daily Av.
†Prairie Pipe Line Co.	4,182,206	134,909
Gulf Pipe Line Co.	1,280,348	41,301
Texas Pipe Line Co.	622,002	20,065
Magnolia Petroleum Co.	1,215,405	39,271
Empire Pipe Line Co.	881,718	28,443
Cosden Pipe Line Co.	731,822	23,607
†Sinclair Pipe Line Co.	2,767,260	89,267
*Other lines	8,370,000	270,000
Total Dec.	20,050,761	646,863
Total Nov.	19,571,290	652,376
Difference	479,471	5,513

Stocks

*Prairie Oil & Gas Co.	27,390,000
*Prairie Pipe Line Co.	2,000,000
Gulf Pipe Line Co. and Gypsy Oil Co.	6,572,235
The Texas Co.	4,363,549
Magnolia Petroleum Co.	5,868,902
Empire Pipe Line Co.	3,015,055
Cosden Pipe Line Co.	1,704,138
*Sinclair Crude Oil Purchasing Co.	22,400,000
Carter Oil Co.	16,038,643
*Other lines	10,000,000
Total December	99,352,522
Total Nov.	101,633,876
Difference	2,281,354

*Estimated.

†Prairie shipments also include Texas crude oil and Sinclair shipments include also Wyoming and Texas crude oil.

Note—Stocks do not include approximately 5,975,000 bbls. held in storage on private tank farms and leases.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for December and January:

	Dec. '25	Jan. '26
Nat. Transit	142,875.10	143,083.02
S. W. Pa. P. L.	81,352.71	77,636.84
Eureka P. L.	349,600.31	328,099.81
Buckeye P. L. (Macksburg)	314,284.81	279,450.58
Buckeye P. L. (Cleveland)	11,199.41	11,364.93
Buckeye P. L. (Lima, etc.)	115,800.20	117,302.17
Indiana P. L.	8,529.02	8,872.25
Cumberland P. L.	273,857.20	264,029.33
N. Y. Transit	19,369.10	18,738.53
Tidewater P. L.	143,964.94	145,119.51
Pure Oil	173,742.21	168,182.43
Emery P. L.	49,321.62	48,775.97
Indian Ref.	77,197.35	80,966.82
Paragon Dev.	28,798.89	26,760.52
Pittsburgh P. L.	7,289.93	6,141.78
Total	1,797,182.81	1,724,524.19
Daily average	57,973.64	55,629.81

Note—Indian Refining Co. also reported other recipts of 288,281.87 bbls. Paragon Refining Co. had other receipts of 144,822.43 bbls. Paragon Development had other receipts of 2,718.44 bbls. Pure Oil had other receipts of 50,636.88 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for December and January:

	Dec. '25	Jan. '26
Nat. Transit	443,017.16	288,806.28
S. W. Pa. P. L.	351,978.59	366,563.67
Eureka P. L.	170,749.27	164,947.50
Buckeye P. L. (Macksburg)	119,899.62	117,122.01
Buckeye P. L. (Cleveland)	971.01	1,122.83
Buckeye P. L. (Lima, etc.)	817,463.26	786,501.04
Indiana P. L.	996,091.56	1,163,995.13
Cumberland P. L.	142,888.09	102,188.71
N. Y. Transit	531,362.75	708,005.50
Northern P. L.	122,381.61	135,305.06
Tidewater P. L.	182,574.09	107,972.02
Pure Oil	183,467.60	224,858.49
Emery P. L.	45,572.05	41,988.54
Paragon Ref.	102,951.35	161,272.07
Indian Ref.	406,210.42	428,138.88
Paragon Dev.	31,017.50	31,314.40
Pittsburgh P. L.	6,434.64	7,640.10
Total	4,655,030.57	4,837,741.24
Daily average	150,162.27	156,056.20

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of December and January, were as follows:

	Dec. '25	Jan. '26
Nat. Transit	971,135.56	1,010,068.01
S. W. Pa. P. L.	703,426.32	705,514.46
Eureka P. L.	1,499,699.85	1,503,389.89
Buckeye P. L. (Macksburg)	247,415.66	335,515.41
Buckeye P. L. (Cleveland)	62,224.62	72,522.50
Buckeye P. L. (Lima, etc.)	3,358,078.13	2,773,898.18
Indiana P. L.	532,820.05	536,488.64
Cumberland P. L.	579,400.86	607,313.30
Southern P. L.	479,734.85	497,782.56
N. Y. Transit	756,602.76	659,952.29
Northern P. L.	481,708.84	449,408.69
Pure Oil	409,869.56	400,945.59
Emery P. L.	24,726.50	30,761.95
Paragon Ref.	65,041.84	48,043.84
Indian Ref.	275,004.53	218,689.98
Paragon Dev.	5,999.82	4,400.92
Pittsburgh P. L.	5,555.61	4,084.15
Total	10,458,445.36	9,859,170.36
Increase	609,712.29	599,276.00

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of December and January showing the gross stocks of the above fields:

	Dec. '25	Jan. '26
Penna.	3,842,589.45	3,862,226.25
Lima	1,070,027.70	1,025,702.95
Kentucky	1,140,119.24	1,197,665.71
Mid-Continent	4,324,754.42	3,717,998.58
Illinois	80,954.55	55,576.87
Total	10,458,445.36	9,859,170.36

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1923	1924	1925	1926
January	75,790	62,638	56,831	55,630
February	71,092	68,023	60,606	.....
March	76,592	68,721	60,575	.....
April	75,614	71,058	63,062	.....
May	77,365	63,942	59,217	.....
June	77,593	63,230	61,270	.....
July	71,879	64,208	62,639	.....
August	76,910	59,942	59,686	.....
September	72,358	62,930	62,510	.....
October	76,256	64,976	60,995	.....
November	70,762	56,282	59,350	.....
December	69,271	55,814	57,974	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1923	1924	1925	1926
January	171,067	145,518	157,389	156,056
February	164,219	148,732	160,863	.....
March	185,487	147,098	154,591	.....
April	170,751	147,611	151,429	.....
May	177,102	134,997	146,995	.....
June	173,598	143,010	149,467	.....
July	168,330	124,187	161,338	.....
August	142,776	123,120	161,730	.....
September	137,266	127,325	156,719	.....
October	134,597	123,170	145,388	.....
November	131,426	124,400	143,582	.....
December	139,909	151,392	150,162	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1924	1925	1926
January	12,907,202	11,353,276	9,859,176
February	11,844,068	11,192,924	.....
March	10,906,752	11,158,297	.....
April	10,922,742	11,062,082	.....
May	11,335,309	11,207,562	.....
June	11,544,204	11,093,796	.....
July	12,062,361	11,067,453	.....
August	12,221,676	10,974,481	.....
September	12,206,836	10,781,753	.....
October	12,664,061	11,086,850	.....
November	12,268,530	11,068,158	.....
December	11,583,680	10,458,445	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above.

1925—	Receipts	Shipmts.	Stocks
January	1,730.86	1,681.15	12,938.48
February	2,702.05	4,564.70	11,075.83
March	3,177.21	2,354.30	11,989.74
April	3,040.41	1,780.11	13,159.04
May	2,814.99	5,719.90	10,254.13
June	3,052.75	1,221.83	12,085.05
July	2,639.34	3,174.10	11,550.29
August	3,216.97	1,577.99	13,189.27
September	2,929.99	5,352.05	10,767.21
October	2,869.75	1,499.34	12,137.62
November	2,759.66	2,571.32	12,283.40
December	2,661.87	3,441.67	11,503.60

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Feb. 1	2,334,826.01
Runs from wells	638,209.44
Other receipts	532,451.44
Regular deliveries	464,680.43
Other deliveries	426,430.81

The amount of Illinois oil run by the Tidewater Pipe Co. in January was 27,034.18 bbls. and deliveries were 51,403.33 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1925—		
February	636,635.20	514,661.52
March	754,335.68	611,348.49
April	632,865.14	637,242.85
May	692,671.94	568,573.62
June	700,090.46	589,535.24
July	724,481.26	564,713.19
August	673,652.38	650,649.97
September	706,434.87	510,697.61
October	706,532.00	633,682.32
November	664,556.30	488,449.19
December	665,086.99	578,938.47
1926—		
January	665,243.62	516,083.76

The Tidewater Pipe Co., Ltd., also delivered in January 146,142.53 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 305,517.38 bbls.

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per week—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
September	17,269	35,931	212,100	86,569	29,600	441,469	.....	36,869	.....	.....	36,869	478,338
October	21,455	29,806	143,388	68,642	41,321	304,613	.....	.....	.....	.....	.....	304,613
November	50,869	68,131	103,131	92,231	66,269	381,731	.....	.....	16,400	5,831	42,231	423,962
December	43,585	68,645	182,679	141,358	67,639	503,906	.....	33,873	34,097	.....	67,970	571,876

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per week—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
September	70,700	41,531	289,331	61,600	194,531	657,693	115,500	168,469	37,800	14,700	336,469	994,162
October	149,709	94,836	275,933	44,030	160,755	725,291	175,000	207,736	13,752	20,321	416,813	1,142,103
November	136,969	30,331	231,100	70,910	241,731	811,041	91,231	191,569	54,369	43,400	380,569	1,191,610
December	89,642	143,815	249,291	106,427	189,224	777,388	91,903	177,709	48,552	38,591	356,766	1,134,154

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS (REVISED)

(IN BARRELS)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
January:	Month	18,743,288	15,462,800	13,796,729	2,520,858	3,252,303	1,760,328	2,625,350	3,066,000	61,227,656
	Daily average	604,622	498,800	445,056	81,318	108,410	56,785	84,689	98,903	1,975,084
February:	Month	16,869,833	13,905,780	11,232,593	2,466,660	2,886,296	1,656,914	2,676,235	2,957,000	54,651,411
	Daily average	602,494	496,635	401,164	88,095	103,082	59,604	95,583	105,606	1,948,264
March:	Month	18,626,019	14,403,716	13,062,907	2,824,534	3,564,472	1,807,559	2,734,235	3,203,000	60,225,443
	Daily average	600,839	464,636	421,384	91,114	114,983	58,308	88,201	103,290	1,942,756
August:	Month	21,005,580	14,441,040	11,695,365	2,971,110	7,560,230	1,767,077	3,744,691	3,084,000	62,837,576
	Daily average	677,599	465,840	423,179	99,037	252,008	58,903	91,490	102,800	2,094,586
May:	Month	18,820,328	14,442,675	13,077,697	3,493,266	11,813,996	1,886,752	3,799,542	3,167,300	69,502,556
	Daily average	607,107	465,925	421,861	112,686	381,097	60,863	90,308	102,171	2,242,018
June:	Month	19,288,135	13,832,970	12,602,540	3,229,440	9,200,372	1,820,965	3,754,498	3,333,000	66,127,920
	Daily average	642,938	461,099	420,085	107,648	306,672	61,032	91,816	109,000	2,204,264
July:	Month	20,411,049	14,263,565	12,337,598	3,686,676	7,835,819	1,898,178	3,129,199	3,348,000	66,910,083
	Daily average	658,421	460,115	397,984	118,925	252,768	61,231	100,942	108,000	2,158,390
August:	Month	21,005,580	14,441,040	11,936,079	3,658,087	7,450,580	1,858,543	3,250,448	3,177,000	66,677,357
	Daily average	677,599	465,840	385,032	114,777	240,341	58,727	104,853	102,484	2,150,883
September:	Month	20,062,763	14,335,040	11,264,890	3,393,270	6,457,950	1,776,570	3,235,625	3,212,000	64,223,108
	Daily average	668,759	494,168	375,496	113,109	215,265	59,219	107,854	107,067	2,140,937
October:	Month	20,015,076	14,921,199	11,196,511	3,477,146	6,409,281	1,871,830	3,394,990	3,248,000	64,534,033
	Daily average	645,648	481,329	361,178	112,166	206,751	60,382	109,500	104,774	2,081,743
November:	Month	19,095,907	14,590,980	10,650,087	3,231,760	5,927,955	1,758,882	3,088,121	2,992,000	61,335,693
	Daily average	636,530	486,366	355,003	107,727	197,599	58,629	102,937	99,733	2,044,190
December:	Month	19,249,711	14,123,848	10,930,455	3,303,816	6,047,883	1,763,966	3,187,164	3,086,900	61,698,743
	Daily average	620,959	455,608	352,595	106,736	195,093	56,902	102,812	99,552	1,990,282
	Total 12 months	230,147,342	173,270,063	144,782,451	37,151,622	78,407,138	21,537,564	35,620,198	37,929,200	759,846,578
	Daily average	630,541	474,713	396,667	104,525	214,814	59,007	97,590	103,094	2,081,771

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